JOURNAL OF
PHYSICS
AND
CHEMISTRY OF SOLIDS

List of Contents, Author Index and Keyword Index
Volume 56, 1995

PERGAMON

JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS

(FOUNDER EDITOR: HARVEY BROOKS)

Senior Advisory Editors

DAVID E. COX, ARTHUR C. DAMASK, GEORGE J. DIENES, JACQUES FRIEDEL, JOHANN PEISL, SIR JOHN THOMAS, YASUSADA YAMADA and GUAN WEIYAN

Editors

ARUN BANSIL, *Physics Department, Northeastern University, Boston, MA* 02115, *U.S.A.*

YASUHIKO FUJII, *Institute for Solid State Physics, The University of Tokyo*, 7-22-1 *Roppongi, Minato-ku, Tokyo* 106, *Japan*

GEORGE A. SAWATZKY, *Laboratory of Applied and Solid State Physics, Materials Science Centre, University of Groningen, Nijenborgh* 4, 9747 *AG Groningen, The Netherlands*

ROBERT N. SHELTON, *Department of Physics, University of California, Davis, CA* 95616, *U.S.A.*

Editorial Advisory Board

F. BASSANI, Pisa, Italy
A. S. BOROVIK-ROMANOV, Moscow, Russia
R. C. BOWMAN, JR, Azusa, CA, U.S.A.
E. BURSTEIN, Philadelphia, PA, U.S.A.
C. R. A. CATLOW, London, U.K.
A. K. CHEETHAM, Santa Barbara, CA, U.S.A.
J. R. CHELIKOWSKY, Minneapolis, MN, U.S.A.
M. DATE, Ibaraki, Japan
F. J. DI SALVO, Ithaca, NY, U.S.A.
R. C. DYNES, La Jolla, CA, U.S.A.
J. FINK, Dresden, Germany
QINGQUAN GOU, Chengdu, Sichuan, China
C. HAAS, Groningen, The Netherlands
P. HAGENMULLER, Bordeaux, France
E. E. HALLER, Berkeley, CA, U.S.A.
F. J. HIMPSEL, Yorktown Heights, NY, U.S.A.
C. J. HUMPHREYS, Cambridge, U.K.
T. ISHIGURO, Kyoto, Japan
P. W. M. JACOBS, Ontario, Canada
J. A. KRUMHANSL, Ithaca, NY, U.S.A.
K. KAWASAKI, Fukuoka, Japan
S. C. MOSS, Houston, TX, U.S.A.
B. C. SALES, Oak Ridge, TN, U.S.A.
H. SUEMATSU, Tokyo, Japan
T. TIMUSK, Ontario, Canada

Production Editor

M. LAZENBY, *Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX*5 1*GB, U.K.*
Tel: (01865) 843880; *Fax*: (01865) 843923; *e-mail to*: m.lazenby@elsevier.co.uk

Publishing, Subscription and Advertising Offices: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K.; and Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Published monthly. Annual Institutional Subscription Rates 1996: North, Central and South America, US$2147.00, Rest of World £1350.00. Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Subscription enquiries from customers in North America should be sent to: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. and from the Rest of the World to: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. Subscription rates for Japan are available on request.

Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Elsevier Science offices (Oxford and New York). Complete volumes and single issues can be purchased for 1990–1995. Earlier issues are available in high quality photo-duplicated copies as complete volumes only. Back volumes on microfilm are available from UMI, 300 North Zeeb Road, Ann Arbor, MI 48106, U.S.A.

Copyright © 1995 Elsevier Science Ltd

SECOND CLASS POSTAGE PAID AT NEWARK, NEW JERSEY AND ADDITIONAL ENTRY POINTS. The *Journal of Physics and Chemistry of Solids* (ISSN 0022–3697) is published monthly, January to December in one volume by Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. The annual subscription in the U.S.A. is $2147. The *Journal of Physics and Chemistry of Solids* is distributed by Virgin Mailing and Distribution, 10 Camptown Road, Irvington, NJ 07111-1105. POSTMASTER: Please send address corrections to *Journal of Physics and Chemistry of Solids*, c/o Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Whilst every effort is made by the publishers and editorial board to see that no inaccurate or misleading data, opinion or statement appear in this journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the publishers, the editorial board and editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Scanning Electron Micrographs on cover courtesy of John Simpson, II-VI MBE Group, Heriot-Watt University, Edinburgh, U.K.

LIST OF CONTENTS

Number 1

iii Publisher's Note

E. Radzhabov and **V. Otroshok** — 1 Optical spectra of oxygen defects in BaFCl and BaFBr crystals

Z. A. Matysina, O. S. Pogorelova, S. Yu. Zaginaichenko and **D. V. Schur** — 9 The surface energy of crystalline CuZn and FeAl alloys

L. Pardo, M. L. Calzada, S. J. Milne, J. Ricote and **B. Jimenez** — 15 Microstructure development of diol-based sol–gel processed lead titanate thin films

D. Zhang, G. Lan, S. Hu, H. Wang and **J. Zheng** — 27 Raman scattering study of benzophenone under high pressure

A. Sengupta and **D. Ghosh** — 35 Hyperfine interactions of ^{161}Dy in dysprosium pyrogermanate at low temperature

B. P. Dwivedi and **B. N. Khanna** — 39 Cation dependence of Raman scattering in alkali borate glasses

A. Veron, J. Emery and **F. Lari-Guillet** — 51 Naphthalene probe behaviour in normal phase I and incommensurate phase III of biphenyl

Z. Wen-Chen — 61 Cation displacement in the case of charge misfitting substitution for $3d^5$ ions in corundum-type structure

N. H. March and **B. V. Paranjape** — 65 Relation between thermoelectric power and Hall coefficient with application to the normal state of high T_c superconductors

D. G. Clerc and **D. A. Cleary** — 69 A study of the mechanism of cobaltocene intercalation in $Cd_2P_2S_6$

M. Sorescu, E. T. Knobbe and **D. Barb** — 79 Excimer laser processing of amorphous and nanocrystalline $Fe_{73.5}Cu_1Nb_3Si_{22.5-x}B_x$ ($x = 6$ and 9)

S.-H. Choe, B.-N. Park, K.-S. Yu, S.-J. Oh, H.-L. Park and **W.-T. Kim** — 89 Optical properties of undoped and Co-doped $CdIn_2Se_4$ single crystals

I. G. Batirev and **J. A. Leiro** — 93 Stability of the ferromagnetic state of Fe atoms at the surface of solids and small clusters

B. Lenoir, A. Demouge, D. Perrin, H. Scherrer, S. Scherrer, M. Cassart and **J. P. Michenaud** — 99 Growth of $Bi_{1-x}Sb_x$ alloys by the traveling heater method

Y. Yamamura, K. Saito, H. Saitoh, H. Matsuyama, K. Kikuchi and **I. Ikemoto** — 107 Heat capacity measurements and phase transition of crystalline 4,4″-difluoro-*p*-terphenyl

O. Alvarez-Fregoso, O. Zelaya-Angel, J. G. Mendoza-Alvarez, F. Sánchez-Sinencio, M. H. Farías and **L. Cota-Araiza** — 117 Structural, optical and electrical properties characterization of CdSbTe thin films grown by radiofrequency sputtering

O. Schoenfeld, X. Zhao, T. Hempel, Y. Aoyagi and **T. Sugano** — 123 Structure and electrical transport in microcrystalline composite Si–$NiSi_2$ thin films

J. Soullard — 129 Vacancy clustering in manganese oxide

R. Pis Diez, E. J. Baran, A. E. Lavat and M. C. Grasselli 135 Vibrational and electronic spectra of some mixed oxides belonging to the Sr_2PbO_4 structural type

I. Shaltout, Y. Tang, R. Braunstein and A. M. Abu-Elazm 141 Structural studies of tungstate–tellurite glasses by Raman spectroscopy and differential scanning calorimetry

A. P. Batra and L. Slifkin 151 Possible role of cation divacancy in anion diffusion in silver halides

I Keywords for the *Journal of Physics and Chemistry of Solids*

Number 2

iii Publisher's Note

X. Zhang, K. W. Yip and C. K. Ong 153 A comparative study of the pressure-induced structural changes in $YBa_2Cu_4O_8$ and $YBa_2Cu_3O_{7-x}$

A. Grzechnik and P. F. McMillan 159 High temperature and high pressure Raman study of $LiVO_3$

A. K. Ghorai and D. P. Bhattacharya 165 Mobility characteristics of non-equilibrium carriers in III–V compounds at low lattice temperatures

S. G. Ingle, J. G. Dupare and R. N. Kakde 173 Use of γ-ray irradiation to control the domain structure in $KNbO_3$ single crystals

S. Takai, H. Kawaji and T. Atake 179 Low temperature heat capacity of α-K_2ZnBr_4 and phase transition at 156 K

O. Yamamuro, N. Onoda-Yamamuro, T. Matsuo, H. Suga, T. Kamiyama, T. Ishigaki and H. Asano 183 X-Ray and neutron diffraction studies of methylammonium tetrafluoroborate: highly disordered orientations of $CH_3NH_3^+$ and BF_4^- ions

P. Chattopadhyay 189 Effect of inversion on the grain boundary potential of a polycrystalline semiconductor

M. Carle, T. Caillat, C. Lahalle-Gravier, S. Scherrer and H. Scherrer 195 Crystal growth and thermodynamics of n-type $Bi_2(Te_{1-x}Se_x)_3$ single crystal solid solutions ($x \leqslant 0.05$)

M. Carle, P. Pierrat, C. Lahalle-Gravier, S. Scherrer and H. Scherrer 201 Transport properties of n-type $Bi_2(Te_{1-x}Se_x)_3$ single crystal solid solutions ($x \leqslant 0.05$)

S. A. Kukushkin and A. V. Osipov 211 Kinetics of non-isothermal nucleation of thin films

A. Kumar and K. Shahi 215 Composition and particle size effects on ionic conduction in KCl–Al_2O_3 composite solid electrolytes

H. Hara and M. Sorai 223 Heat capacity and phase transition of the thermochromic complex bis(1,5-diazacyclooctane)copper(II) nitrate

J.-T. Yu, C.-H. Lee, K.-T. Liu C.-L. Hiu, Y. Huang, D. A. Payne and K.-H. Lii 233 Electron paramagnetic resonance study of an Al-associated oxygen hole center in $KTiOPO_4$: Al crystals

D. Nesheva, Z. Aneva and Z. Levi 241 $B_{12}SiO_{20}$ monocrystals doped with transition metals

E. A. Secco and A. Sharma 251 Structure stabilization: locking-in fast cation conductivity phase in TlI

C. A. Majid and M. A. Hussain 255 Structural transformations in polycrystalline rhenium trioxide

B. Bouma and **G. Blasse** 261 Dependence of luminescence of titanates on their crystal structure

C. De Mello Donegá, G. J. Dirksen, H. F. Folkerts, A. Meijerink and **G. Blasse** 267 The vibronic spectroscopy and luminescence concentration quenching of the Pr^{3+} ion in La_2O_3, LaOF and $LiYF_4$

Z. T. Jiang, B. D. James, J. Liesegang, K. L. Tan, R. Gopalakrishnan and **I. Novak** 277 Investigation of the ferroelectric phase transition in $(CH_3NH_3)HgCl_3$

Q. Wang, Y. Gao and **A. Bulou** 285 Crystal field and free-ion analysis for Eu^{3+} ion in LaOF crystal

J.-W. Lee, R. Ryoo, M. S. Jhon and **K.-I. Cho** 293 Bond density and physicochemical properties of a hydrogenated silicon nitride film

M. T. Pencarinha, C. P. Poole Jr, H. A. Farach and **O. A. Lopez** 301 Measurement of flux creep in $Bi_2Sr_2CaCu_2O_8$ using electron spin resonance

Number 3/4

SPECIAL ISSUE

HPSP VI—*Proceedings of the 6th International Conference on High Pressure Semiconductor Physics*

iii Conference details

v Foreword

Electronic Structures

T. Kobayashi, H. Kojima, R. S. Deol, N. Buchan, W. Heuberger, A. Jakubowicz and **P. Roentgen** 311 The effect of pressure on the band-gap energy in ordered GaInP and AlGaInP grown by MOVPE

V. V. Baidakov, V. N. Ermakov, A. E. Gorin, V. V. Kolomoets and **V. A. Shenderovskii** 319 Non-trivial transport phenomena in extremely strained silicon and germanium crystals

E. M. Baugher, M. Chandrasekhar, H. R. Chandrasekhar, H. Luo, J. K. Furdyna and **L. R. Ram-Mohan** 323 A comparative study of ordered alloy and random alloy quantum wells of $Zn_{1-x}Cd_xSe/ZnSe$ under pressure

S. J. Clark, G. J. Ackland and **H. Akbarzadeh** 329 A theoretical study of pressure effects on selenium-I

J. González, F. V. Pérez, E. Moya and **J. C. Chervin** 335 Hydrostatic pressure dependence of the energy gaps of CdTe in the zinc-blende and rocksalt phases

M. Kobayashi, T. Nakai, S. Mochizuki and **N. Takayama** 341 Validity of the Sugano–Tanabe diagram for band states in MnO and MnS under high pressure

Hideki Kojima, Hiroshi Kayama, Toshihiko Kobayashi, Kazuo Uchida and **Jun'ichiro Nakahara** 345 Comparative study of photoluminescence in ordered and disordered GaInP alloys under high pressure

A. D. Prins, J. L. Sly, A. T. Meney, D. J. Dunstan, E. P. O'Reilly, A. R. Adams and **A. Valster** 349 High pressure determination of AlGaInP band structure

H. Teisseyre, P. Perlin, T. Suski, I. Grzegory, J. Jun and **S. Porowski** 353 Photoluminescence in doped GaN bulk crystal

R. J. Thomas, H. R. Chandrasekhar, M. Chandrasekhar, E. D. Jones and R. P. Schneider, Jr — 357 Polarized photomodulated reflectivity and photoluminescence studies of ordered $InGaP_2$ under pressure

Heterostructures: Optical

S. C. Shen, W. Shan, X. M. Fang and S. Jiang — 363 Photomodulated transmission spectroscopy of $In_xGa_{1-x}As$/GaAs MQWs under hydrostatic pressure

A. R. Goñi, S. Ernst, K. Syassen and K. Eberl — 367 Electron–electron interactions in 2D electron gases: inelastic light scattering studies at high pressure

Hyeonsik M. Cheong, J. H. Burnett, W. Paul, E. S. Koteles and B. Elman — 375 Observation of an optical switching effect in GaAs/AlGaAs quantum wells under hydrostatic pressure

M. S. Daly, R. J. Warburton, J. G. Michels, R. J. Nicholas, J. J. Harris and C. T. Foxon — 381 Zeeman splitting in the extreme quantum limit through cyclotron resonance on two-dimensional GaAs at high pressure

G. H. Li, A. R. Goñi, K. Syassen, O. Brandt and K. Ploog — 385 High pressure study of Γ–X mixing in InAs/GaAs quantum dots

H. X. Han, Z. X. Liu, Z. P. Wang, J. Q. Zhang, Z. L. Peng and S. X. Yuan — 389 Pressure dependence of photoluminescence from ZnSe:Te–$(CdSe)_1(ZnSe)_3$ superlattice quantum wells

S. Hitomi, K. Takarabe, S. Minomura, J. Sakai and T. Tatsumi — 393 Photoluminescence and Raman spectra of $Si/Si_{1-x}Ge_x$ strained superlattices under high pressure

De-Sheng Jiang, Zhao-Ping Wang, C. Abraham, K. Syassen, Y. H. Zhang and K. Ploog — 397 A resonant Raman study on phonons in GaInAs/AlInAs multiple quantum wells

O. Kuhn, D. K. Maude, J. C. Portal, M. Henini, L. Eaves, G. Hill and M. A. Pate — 403 Γ–X mixing studied by electroluminescence spectroscopy under hydrostatic pressure in a GaAs/AlAs p–i–n superlattice resonant tunnelling device

J. Gregus, J. Nakahara, K. Takamura, J. Watanabe, K. Ando and H. Akinaga — 407 Photoluminescence in CdMnTe strained thin films

P. Perlin, T. P. Sosin, W. Trzeciakowski and E. Litwin-Staszewska — 411 The effect of Γ–X mixing on the direct excitonic photoluminescence in GaAs/AlGaAs quantum wells

P. Perlin, S. Shilo, T. Sosin, Y. Tyagur, T. Suski, W. Trzeciakowski, G. Karczewski, T. Wojtowicz, E. Janik, A. Zakrzewski, M. Kutrowski and J. Kossut — 415 The effect of pressure on the luminescence of CdTe/CdMnTe quantum wells

T. P. Sosin, P. Perlin, W. Trzeciakowski and R. Tober — 419 Absorption and photoluminescence under pressure in InGaAs/GaAs strained quantum wells

A. D. Prins, J. L. Sly, A. T. Meney, D. J. Dunstan, E. P. O'Reilly, A. R. Adams and A. Valster — 423 Direct measurement of band offsets in GaInP/AlGaInP using high pressure

W. R. Tribe, P. C. Klipstein, R. Grey, J. S. Roberts and G. W. Smith — 429 Investigation of the conduction bandstructure in (001) oriented type II GaAs/AlAs short period superlattices using (100) uniaxial stress

Heterostructures: Transport

P. C. Klipstein — 435 New resonant tunneling processes between longitudinal and transverse X-states in GaAs/AlAs double barrier structures beyond the type II transition

S. Holmes, W. T. Yuen, T. Malik, S. J. Chung, A. G. Norman, R. A. Stradling, J. J. Harris, D. K. Maude and J. C. Portal — 445 Magnetotransport measurements on InAs–GaSb quantum wells with the application of hydrostatic pressure

M. S. Daly, W. Lubczyński, R. J. Warburton, D. M. Symons, M. Lakrimi, K. S. H. Dalton, M. Van Der Burgt, R. J. Nicholas, N. J. Mason and P. J. Walker — 453 Pressure investigation of the quantum Hall effect in intrinsic semimetallic InAs/(Ga,In)Sb heterostructures

S. Holmes, D. K. Maude, M. L. Williams, J. J. Harris, J. C. Portal, K. W. J. Barnham and C. T. Foxon — 459 Determination of the transport properties of composite fermions under high hydrostatic pressure

U. M. Khan-Cheema, N. J. Mason, P. J. Walker, P. C. Klipstein and G. Hill — 463 High pressure studies of negative differential resistance in InAs/GaSb resonant conduction heterostructures

D. Lancefield, A. R. Adams, A. T. Meney, W. Knap, E. Litwin-Staszewska, C. Skierbiszewski and J. L. Robert — 469 The light-hole mass in a strained InGaAs/GaAs single quantum well and its pressure dependence

J. M. Smith, P. C. Klipstein, D. G. Austing, R. Grey and G. Hill — 475 The role of interface quality in resonant tunneling between transverse X-states in GaAs/AlAs double barrier structures pressurised beyond the type II transition

Phase Transitions

T. Tinoco, A. Polian, J. P. Itié, E. Moya and J. Gonzalez — 481 Equation of state and phase transitions in $AgGaS_2$ and $AgGaSe_2$

M. I. McMahon and R. J. Nelmes — 485 Structural studies of tetrahedrally-coordinated semiconductors at high pressure—new systematics

Toshihiro Arai, Toshiharu Makino, Masaaki Arai, Kiyoto Matsuishi and Seinosuke Onari — 491 Pressure-induced structural phase transition of CdS microcrystals studied by Raman scattering

J. Crain, G. J. Ackland, R. O. Piltz, P. D. Hatton and S. J. Clark — 495 Dense tetrahedral structures of compound semiconductors

M. Bernasconi, G. L. Chiarotti, P. Focher, S. Scandolo, E. Tosatti and M. Parrinello — 501 First-principle-constant pressure molecular dynamics

J. González, E. Calderón, T. Tinoco, J. P. Itié, A. Polian and E. Moya — 507 $CuGa(S_xSe_{1-x})_2$ alloys at high pressure: optical absorption and X-ray diffraction studies

Raymond G. Greene, Huan Luo, Kouros Ghandehari and Arthur L. Ruoff — 517 High pressure structural study of AlSb to 50 GPa

Raymond G. Greene, Huan Luo and Arthur L. Ruoff — 521 High pressure X-ray and Raman study of ZnSe

P. Grima, A. Polian, M. Gauthier, J. P. Itié, M. Mezouar, G. Weill, J. M. Besson, D. Haüserman and H. Hanfland — 525 Phase relationships in mercury telluride under high temperature and pressure

T. Hatano, R. Akimoto, M. Kobayashi, T. Suzuki and S. Endo — 531 Raman study of pressure-induced magnetic phase transition in EuSe

R. Komori and Y. Miyamoto — 535 Pressure induced rotational ordering phase transition in solid C_{60}

R. J. Nelmes, M. I. McMahon, N. G. Wright, D. R. Allan, H. Liu and J. S. Loveday — 539 Structural studies of III–V and group IV semiconductors at high pressure

R. J. Nelmes, M. I. McMahon, N. G. Wright and D. R. Allan — 545 Structural studies of II–VI semiconductors at high pressure

Atsushi Nishikawa, Komajiro Niizeki, Koichi Shindo and Kaoru Ohno — 551 Band structure and structural stability of the high-pressure phases of the group VIb elements

A. San Miguel, A. Polian and J. P. Itié — 555 A variable coordination structure in II–VI semiconductors: the cinnabar phase

K. Tsuji, Y. Katayama, Y. Yamamoto, H. Kanda and H. Nosaka — 559 Amorphization from the quenched high-pressure phase in tetrahedrally-bonded materials

Vibrational Properties

J. Bak, U. Venkateswaran, C. L. Mak, R. Sooryakumar and B. T. Jonker — 563 Pressure dependence of the Fano asymmetry of optical phonons in $Zn_{1-x}Co_xSe$ and $Zn_{1-x}Fe_xSe$

S. Ernst, A. R. Goñi, K. Syassen and M. Cardona — 567 LO-phonon–plasmon modes in *n*-GaAs and *n*-InP under pressure

J. González, E. Moya and J. C. Chervin — 571 Pressure and temperature dependences of the Raman-active phonons in $CuGaS_2$

Kohsuke Nishikawa and Yasuhiko Miyamoto — 577 Raman spectroscopic study on the phase transition in solid C_{60} under high pressure

Akihito Yoshioka and Kiyofumi Nagata — 581 Raman spectrum of sulfur under high pressure

Defects

C. H. Park and D. J. Chadi — 585 Pressure dependence of deep centers in II–VI semiconductors: theory

M. Baj and L. H. Dmowski — 589 Direct evidence of the two-electron character of DX centers based on co-doping with shallow donors and application of high pressure

I.-H. Choi and P. Y. Yu — 595 Deep levels in $AgGaSe_2$

E. Litwin-Staszewska, R. Piotrzkowski, S. Contreras, F. Kobbi, V. Mosser and J. L. Robert — 599 Emission energies of Si-DX centers in various AlGaAs microstructures

A. Niilisk, A. Laisaar, I. S. Gorban' and A. V. Slobodyanyuk — 603 Pressure effects on zero-phonon lines in the impurity photoluminescence spectra of 6*H* SiC crystals

T. M. Ritter, B. A. Weinstein, H. M. Kim, C. R. Wie, K. Stair, C. Choi-feng and M. Funato — 607 Relation between phase stability and mechanical defects in InGa(Al)As/GaAs and ZnSe/GaAs heterostructures under pressure

J. L. Robert, P. Sellitto, A. Gougam, J. Sicart and R. Planel — 615 Determination of the energetical separation of DX states in GaAs and in AlAs by using planar-doped superlattices

Marcin L. Sadowski and Marian Grynberg — 619 Effects of the population of localized levels on shallow donor transitions in semiinsulating GaAs

G. A. Samara, M. Skowronski and W. C. Mitchel — 625 Pressure as a probe of deep levels and defects in semiconductors: antisites and oxygen centers in GaAs

K. Takarabe, N. Shirase, S. Minomura, H. Kato, Y. Watanabe and K. Matsuda — 631 Multiplicity and lattice relaxation of the DX center studied by electron emission spectra under pressure

J. Zeman, M. Zigone and G. Martinez 635 DX centers in *n*-type GaAs under hydrostatic pressure

New Techniques and Other Topics

I. Grzegory, J. Jun, M. Boćkowski, St. Krukowski, M. Wróblewski, B. Łucznik and S. Porowski 639 III–V nitrides—thermodynamics and crystal growth at high N_2 pressure

Witold Trzeciakowski and Tomasz P. Sosin 649 New method for studying deformation effects on the optical spectra of quantum wells

J. Zeman, M. Zigone, G. L. J. A. Rikken and G. Martinez 655 Hydrostatic pressure effects on the porous silicon luminescence

C. H. McMahon, J. W. Bae, C. S. Menoni, D. Patel, S. Feld, C. Wilmsen, H. Temkin, P. Brusenbach and R. Leibenguth 663 Pressure and temperature induced detuning of gain and reflectivity spectra in vertical cavity surface emitting lasers

D. Patel, C. S. Menoni, D. W. Schult, T. McMahon and S. M. Goodnick 669 Effect of pressure on the output characteristics of p-GaAs/AlGaAs heterojunction field effect transistor

Number 5

iii Publisher's Note

C. De Mello Donegá, A. Meijerink and G. Blasse 673 Non-radiative relaxation processes of the Pr^{3+} ion in solids

A. Gröne and S. Kapphan 687 Sharp, temperature dependent OH/OD IR-absorption bands in nearly stoichiometric (VTE) $LiNbO_3$

Katsumi Tanaka, Hideaki Suzuki, Katsuyasu Kawano and Ryohei Nakata 703 ESR studies of Mn^{2+}–Ba^{2+} centres in $Ca_{1-x}Ba_xF_2$:Mn

Fu-Hsing Lu, Martin L. Newhouse and Rüdiger Dieckmann 715 Oxygen activity dependent dissolution of nickel from nickel oxide into platinum

Fu-Hsing Lu and Rüdiger Dieckmann 725 Point defects in oxide spinel solid solutions of the type $(Co,Fe,Mn)_{3-\delta}O_4$ at 1200°C

C. E. Mungan, U. Happek, T. Z. Hossain and A. J. Sievers 735 Infrared spectroscopy of the stretching modes of SeH^- and TeH^- in KCl and KBr

G. K. Wertheim and D. N. E. Buchanan 745 Comparison of photoemission and resistivity in alkaline–earth compounds of C_{60}

Keiji Kusaba, Yasuhiko Syono, Takumi Kikegawa and Osamu Shimomura 751 A topological transition of B1–KOH–TlI–B2 type AgCl under high pressure

Y. Mao and A. Krier 759 InAsSb p–n junction light emitting diodes grown by liquid phase epitaxy

Yu. V. Golikov, S. A. Petrova, A. V. Antonov and V. F. Balakirev 767 Phase diagrams of the Mn–Al–O system

I Keywords for the *Journal of Physics and Chemistry of Solids*

Number 6

iii Publisher's Note

Takuya Hashimoto, Ryo Hirasawa, Toshikazu Yoshida, Yuki Yonemura, Hideki Tanaka, Junichiro Mizusaki and **Hiroaki Tagawa** 777 Analysis of role of oxygen deficiency in crystal structure and conduction mechanism of $BaBi_{0.25}Pb_{0.75}O_{3-\delta}$

Ho-Jun Song, Sang-Hyun Yun and **Wha-Tek Kim** 787 Photoluminescence properties of $TlGaS_2$ and $TlGaS_2:Er^{3+}$ single crystals

J. E. Hasbun 791 Electric field transport in a two-dimensional AlGaAs/GaAs heterostructure

D. C. Sayle, C. R. A. Catlow, M.-A. Perrin and **P. Nortier** 799 Computer simulation study of the defect chemistry of rutile TiO_2

M. E. Danebrock, W. Jeitschko, A. M. Witte and **R. Pöttgen** 807 Magnetic properties of the carbides RCoC (R = Y, Gd–Er, Lu) with YCoC-type structure

P. Moens, F. Callens and **E. Boesman** 813 Electron paramagnetic resonance and molecular orbital study of CO_3^- ions entrapped in KCl single crystals

M. Januszczyk, Z. Kruczyński, J. Janicki and **J. Pietrzak** 819 EPR and Mössbauer studies of the $Fe(py)_3Cl_3 \cdot py$ single crystal

R. R. Reddy, Y. Nazeer Ahammed and **M. Ravi Kumar** 825 Variation of magnetic susceptibility with electronic polarizability in compound semiconductors and alkali halides

S. A. Kukushkin and **A. V. Osipov** 831 Kinetics of thin film nucleation from multi-component vapor

B. M. Voronin 839 Some simple thermodynamic approaches to superionic disorder in fluorite-type crystals: application to $SrCl_2$ and K_2S

Kazuya Saito, Yasuhisa Yamamura, Koichi Kikuchi and **Isao Ikemoto** 849 Glass transition due to freezing of intramolecular motion: crystalline *trans*-azobenzene and *trans*-stilbene

Minquan Wang, Xianping Fan and **Guohong Xiong** 859 Luminescence of Bi^{3+} ions and energy transfer from Bi^{3+} ions to Eu^{3+} ions in silica glasses prepared by the sol–gel process

T. J. Gryk and **R. H. Bartram** 863 Embedded molecular cluster modeling of $Tl^0(1)$, $In^0(1)$ and $Ga^0(1)$ centers in potassium chloride

W. Kucharczyk 871 Relationship between bond charge and the Szigeti effective charge in alkali halides

G. Concas, F. Congiu, C. Muntoni and **G. Pinna** 877 Mössbauer spectroscopic investigation of iron in sodium phosphate glasses

Jacek Zaleski and **Adam Pietraszko** 883 Crystal structure and investigation of phase transitions in di(tetraethylammonium)pentachloroantimonate (III) $[N(C_2H_5)_4]_2SbCl_5$

I Keywords for the *Journal of Physics and Chemistry of Solids*

Number 7

I. P. Semitelou, J. K. Yakinthos and **E. Roudaut** 891 The magnetic structure of Er_5Si_3

Kai Wang and **Robert R. Reeber** 895 High temperature thermal expansion of alkali halides

J. Andrés, A. Beltrán and **J. A. Igualada** 901 An *ab initio* perturbed ion study of pyrope garnet structure

W. Köstler, A. Winnacker, W. Rossner and **B. C. Grabmaier** 907 Effect of Pr-codoping on the X-ray induced afterglow of $(Y,Gd)_2O_3$:Eu

Taieb Ouazzani, Albert Lichanot and **Cesare Pisani**	915	Effect of the quality of the atomic orbitals basis set on the relaxation and electronic structure of the (110) surface of lithium oxide
I. P. Bykov, M. D. Glinchuk, V. V. Laguta, Y. L. Maximenko, L. Jastrabík, V. A. Trepakov, V. Dimza and **M. Hrabovský**	919	Investigation of chromium impurities charge state and chemical bonds in PLZT ceramic
A. V. Arakcheeva, G.-J. Babonas, L. I. Leonyuk and **G. U. Lubman**	925	Ordering of Ca and Sr atoms in $(Ca_{0.5}Sr_{0.5})(Cu_{0.75}Bi_{0.25})O_2$ single crystals of $CaCuO_2$-type structure
Jadwiga Tritt-Goc	935	Proton dipolar coupling tensors in barium nitroprusside trihydrate
Hiroyuki Kamata, Yuki Yonemura, Junichiro Mizusaki, Hiroaki Tagawa, Kazunori Naraya and **Tadashi Sasamoto**	943	High temperature electrical properties of the perovskite-type oxide $La_{1-x}Sr_xMnO_{3-d}$
T. Hirata	951	Raman-active modes and the tetragonal–monoclinic phase transition in ZrO_2 doped with 12 mol% CeO_2
S. Lizzo, A. Meijerink, G. J. Dirksen and **G. Blasse**	959	On the luminescence of divalent ytterbium in $KMgF_3$ and $NaMgF_3$
J. Haines, J. M. Léger and **S. Hoyau**	965	Second-order rutile-type to $CaCl_2$-type phase transition in β-MnO_2 at high pressure
Yujun Mo, P. Wachter, U. Martin and **F. K. Reinhart**	975	Raman scattering of molecules adsorbed on a rough Al surface
Guanghan Cao, Yitai Qian, Zuyao Chen and **Yuheng Zhang**	981	Pr–O chemical bonding effect and Pr valence state in $PrBa_2Cu_3O_7$: a comprehensive structural-correlation study
B. Deroide, B. Bertheville and **J. V. Zanchetta**	989	Transport properties of polycrystalline samples of calcium and magnesium oxides. Experimental and theoretical approaches
M. C. Marco De Lucas, F. Rodríguez, C. Prieto, M. Verdaguer and **H. U. Güdel**	995	Local structure determination of Mn^{2+} in the $ABCl_3:Mn^{2+}$ chloroperovskites by EXAFS and optical spectroscopy
F. Pellé, N. Gardant, M. Genotelle, Ph. Goldner and **P. Porcher**	1003	Optical properties of Eu^{2+} and laser site selective spectroscopy of Eu^{3+} in $CsCdBr_3$

Number 8

	iii	Publisher's Note
J. Schmelzer, J. Möller and **V. V. Slezov**	1013	Ostwald ripening in porous materials: the case of arbitrary pore size distributions
Byoung-Koo Choi	1023	High temperature phase transitions and thermal decomposition of KH_2PO_4 crystals
M. Radecka and **M. Rekas**	1031	The studies of high-temperature interaction of Nb–TiO_2 thin films with oxygen
Ivo S. Nachev	1039	A Monte-Carlo model of ionic transport across a solid interface
Richard A. Secco and **Etalo A. Secco**	1045	Effect of pressure on the fast ion conductor $AgTlSO_4$
O. L. Malta	1053	The theory of vibronic transitions in rare earth compounds
F. Adam, B. Dupre, K. Kowalski, C. Gleitzer and **J. Nowotny**	1063	Diffusion of Cr in CoO
H. T. Chu, Ni Fang and **Zheng Qi**	1069	Double quantum size effects on the energy spectra of charge carriers in thin wires of pure bismuth

R. Nava and R. Oentrich 1077 Influence of the strongly dispersive transverse acoustic phonon mode on the elastic constants C_{11} and C'_{66} of α-quartz below 300 K

M. S. Augsburger and J. C. Pedregosa 1081 Vibrational investigation of isolated molybdate and tungstate ions with large cations in condensed lattices

V. I. Moravetski, V. A. Andryushchenko and L. M. Sheludchenko 1085 Electronic structure of the carbide phase $Fe_{4-y}Al_yC_x$

L. A. Kulikov, Y. D. Perfil'ev and N. S. Kopelev 1089 The iron charge state in solid cesium ferrate (VI) deduced from Mössbauer absorption and emission spectroscopy

G. Chen, R. G. Haire and J. R. Peterson 1095 Effect of pressure on amorphous $Eu(OH)_3$: a luminescence study

Shusheng Jiang and J. Bruce Wagner, Jr 1101 A theoretical model for composite electrolytes—I. Space charge layer as a cause for charge-carrier enhancement

Shusheng Jiang and J. Bruce Wagner, Jr 1113 A theoretical model for composite electrolytes—II. Percolation model for ionic conductivity enhancement

D. Christofilos, G. A. Kourouklis and S. Ves 1125 A high pressure Raman study of calcium molybdate

Kazunaka Endo, Yasuo Kaneda, Masayuki Aida and Delano P. Chong 1131 Analysis of valence XPS of $(CH_2–CHR)_n$ (R = H, CH_3, OH and F), $(CH_2–CH_2–NH)_n$ and $(CH_2–CH_2–O)_n$ polymers by the semiempirical HAM/3 MO method using the n-mer (n = 2, 3, 4, 5) model

I Keywords for the *Journal of Physics and Chemistry of Solids*

Number 9

iii Publisher's Note

José A. Valdivia and Gaston E. Barberis 1141 Fully relativistic electronic structure of the semiconductors PbTe, PbSe and PbS

P. Boutinaud, D. Garcia, C. Parent, M. Faucher and G. Le Flem 1147 Energy levels of Cu^+ in the oxide insulators $CuLaO_2$ and $CuZr_2(PO_4)_3$

A. Demouge, B. Lenoir, Yu. I. Ravich, H. Scherrer and S. Scherrer 1155 Estimation of carrier mobilities and densities in $Bi_{0.96}Sb_{0.04}$ alloys from galvanomagnetic coefficients

L. Chernyak, K. Gartsman, D. Cahen and O. M. Stafsudd 1165 Electronic effects of ion mobility in semiconductors: semionic behaviour of $CuInSe_2$

Ali Zafor Chowdhury and Keiichiro Nasu 1193 T_{1u} Hubbard model for ferromagnetic and optical properties of potassium-doped zeolite

E. Bassanese and J. Furlan 1201 Charge-carrier transient response from steady-state in a-Si

C. Weyl, J. Zhao, C. Lacour, F. Laher-Lacour and P. Thuéry 1211 Investigation of a nanocrystalline $YBa_2Cu_3O_{7-\delta}$ powder by neutron and electron diffractions

Yutaka Harima, Kazuhiko Takeda and Kazuo Yamashita 1223 Molecular solid of zinc tetraphenylporphyrin as a model organic semiconductor with a well-defined depletion layer

M. V. Ryzhkov, N. I. Medvedeva and V. A. Gubanov 1231 Substitution of Pb by Ag as a way to obtain new high temperature superconductors: a quantum chemical point of view

J. C. Bernede, T. Ben Nasrallah, M. Jamali, J. Y. Mevellec, C. Rabiller and A. Proutiere 1239 Is a hydrogen bond responsible for the optical properties of some dihydroxyanthraquinones: quinizarin and anthraflavic?

M. Górska, J. R. Anderson, J. L. Peng and **Z. Gołacki** 1253 Magnetization and susceptibility of $Sn_{1-x}Eu_xTe$:EuTe

S. A. Kukushkin and **V. V. Slyozov** 1259 Crystallization of binary melts and decay of supersaturated solid solutions at the Ostwald ripening stage under non-isothermal conditions

L. A. Acuña 1271 Thermal expansion and Schottky disorder: a new approach to its analysis

P. Woafo, R. Takontchoup and **A. S. Bokosah** 1277 Soliton mechanism of proton migration in hydrogen-bonded solids

G. Malovichko, O. Cerclier, J. Estienne, V. Grachev, E. Kokanyan and **C. Boulesteix** 1285 Lattice constants of K- and Mg-doped $LiNbO_3$. Comparison with nonstoichiometric lithium niobate

K. Lüghausen, H. Siegert, Th. Woike and **S. Haussühl** 1291 Softening of the elasticity tensor of $Na_2[Fe(CN)_5NO]\cdot 2H_2O$ upon generation of metastable electronic states by irradiation with light

I Keywords for the *Journal of Physics and Chemistry of Solids*

Number 10

SPECIAL ISSUE

A Festschrift Issue in Honour of David E. Cox

v Preface

vii Dedication

R. E. Morris, J. J. Owen and **A. K. Cheetham** 1297 The structure of $La_4Ti_9O_{24}$ from synchrotron X-ray powder diffraction

P. M. Woodward, A. W. Sleight and **T. Vogt** 1305 Structure refinement of triclinic tungsten trioxide

H. Toraya and **T. Okuda** 1317 Crystal structure analysis of polycrystalline $Bi_3Fe_5O_{12}$ thin film by using asymmetric and symmetric diffraction techniques

L. Paolasini, R. Caciuffo, G. H. Lander, J. Rebizant, D. A. Keen, N. Sato and **T. Komatsubara** 1323 Anomalies in the normal-state properties of UPd_2Al_3

M. James, J. P. Attfield and **J. Rodriguez-Carvajal** 1331 Synthesis, crystal structure and magnetism of $Sr_3Sb_2NiO_9$—a ferrimagnetic perovskite

J. A. Hriljac, C. C. Torardi and **T. Vogt** 1339 A high resolution powder neutron diffraction study of the novel layered oxide $BiMo_2O_7OD\cdot 2D_2O$

P. Bénard and **D. Louër** 1345 The layer structure of $Zr(OH)_3NO_3$ determined *ab initio* using conventional monochromatic X-ray powder diffraction

M. A. Roberts, A. N. Fitch and **A. V. Chadwick** 1353 The crystal structures of $(NH_4)_3HGe_7O_{16}\cdot nH_2O$ and $Li_{4-x}H_xGe_7O_{16}\cdot nH_2O$ determined from powder diffraction data using synchrotron radiation

A. N. Christensen, R. G. Hazell, A. M. T. Bell and **A. Altomare** 1359 Precision of a crystal structure derived from a synchrotron X-ray powder pattern. The structure of barium oxalate hydrate $BaC_2O_4\cdot 2H_2O$

R. W. Broach, N. K. McGuire, C. C. Chao and **R. M. Kirchner**	1363	Direct methods structure determination from synchrotron powder diffraction data of a new clathrasil, TMA silicate
C. Röhrig, I. Dierdorf and **H. Gies**	1369	X-ray powder diffraction and NMR-spectroscopic investigations on a porous zincosilicate related to the zeolite VPI-7 (VSV)
R. H. Jones, P. Lightfoot and **R. M. Ormerod**	1377	The location of sorbed Kr in silicalite using resonant X-ray diffraction
D. M. Poojary, D. Grohol and **A. Clearfield**	1383	Crystal structure of uranyl chloromethylphosphonate from X-ray powder diffraction data
L. W. Finger, R. M. Hazen and **B. A. Fursenko**	1389	Refinement of the crystal structure of $BaSi_4O_9$ in the benitoite form
P. A. Barrett, G. Sankar, C. R. A. Catlow and **J. Meurig Thomas**	1395	Investigation of the structural stability of cobalt-containing AlPO-44 microporous materials
T. Egami	1407	Determining medium range order by powder diffraction
P. Suortti, R Bateson, U. Lienert, S. Bramwell and **V. Honkimäki**	1415	Energy-dispersive diffraction with synchrotron radiation as a probe of the source and magnetic form factors
M. Popovici, W. B. Yelon, R. Berliner and **B. J. Heuser**	1425	Two-bent-crystal technique in neutron small angle scattering
T. Yamanaka and **T. Yagi**	1433	Diffraction profile analysis of photosensitive silver halide
H. Fujihisa, Y. Fujii, K. Takemura and **O. Shimomura**	1439	Structural aspects of dense solid halogens under high pressure studied by X-ray diffraction—molecular dissociation and metallization
J. E. Fischer, G. Bendele, R. Dinnebier, P. W. Stephens, C. L. Lin, N. Bykovetz and **Q. Zhu**	1445	Structural analysis of fullerene and fulleride solids from synchrotron X-ray powder diffraction
M. K. Crawford, R. L. Harlow, E. M. McCarron, N. Herron, W. E. Farneth, W. J. Donahue, B. A. Parkinson and **J. Schirber**	1459	Synchrotron X-ray powder diffraction study of electrochemically oxidized $La_2CuO_{4+\delta}$ and $La_{2-x}Nd_xCuO_{4+\delta}$
P. G. Radaelli, M. Marezio, J. L. Tholence, S. De Brion, A. Santoro, Q. Huang, J. J. Capponi, C. Chaillout, T. Krekels and **G. Van Tendeloo**	1471	Crystal structure of the double-Hg-layer copper oxide superconductor $(Hg,Pr)_2Ba_2(Y,Ca)Cu_2O_{8-\delta}$ as a function of doping

Number 11

SPECIAL ISSUE

Proceedings of the 1994 Conference on Magneto-optic Materials

	iii	Publisher's Note
W. R. Eppler and **M. H. Kryder**	1479	Garnets for short wavelength magneto-optic recording
M. S. S. Brooks, T. Gasche and **B. Johansson**	1491	Calculated ground state, optical and magneto-optical properties of uranium sulphide
W. A. Challener	1499	Figures of merit for magneto-optic materials

B. R. Cooper, S. P. Lim, I. Avgin, Q. G. Sheng and **D. L. Price**	1509	Trade-off between increased size and increased broadening of magneto-optic effects in cerium and uranium systems
C. Detlefs, J. C. Lang, G. Srajer, A. I. Goldman, X. Wang, B. N. Harmon and **R. W. McCallum**	1517	Evidence for quadrupolar contributions to the circular magnetic X-ray dichroism of rare earths
B. N. Harmon, V. P. Antropov, A. I. Liechtenstein, I. V. Solovyev and **V. I. Anisimov**	1521	Calculation of magneto-optical properties for 4*f* systems: LSDA + Hubbard *U* results
E. D. Jones, J. F. Klem and **S. K. Lyo**	1525	Magneto-optical studies of compound semiconductors
J. Kübler	1529	Calculated magneto-optical properties of metallic compounds
Y. Murakami, A. Takahashi and **S. Terashima**	1535	High density recording with a super resolution magneto-optical disk using magnetic field modulation method
M.-A. Mycek, U. Siegner, S. Glutsch and **D. S. Chemla**	1543	Ultrafast spectroscopy of GaAs under a magentic field: Coulomb correlated magnetoexcitons in the 3D to 1D transition
D. J. Sellmyer, R. D. Kirby, J. Chen, K. W. Wierman, J. X. Shen, Y. Liu, B. W. Robertson and **S. S. Jaswal**	1549	Magneto-optical and structural properties of nanocrystalline MnBi-based films
S. Uchiyama, X. Y. Yu and **S. Tsunashima**	1557	Magneto-optical Kerr effect of rare earth–transition metal amorphous alloy and multilayer films
D. Weller, A. Carl, R. Savoy, T. C. Huang, M. F. Toney and **C. Chappert**	1563	Structural transitions and magnetic anisotropy in ultrathin Co wedges on Pt(111) investigated with the magneto-optical Kerr effect
	I	Keywords for the *Journal of Physics and Chemistry of Solids*

Number 12

SPECIAL ISSUE

SPECTROSCOPIES IN NOVEL SUPERCONDUCTORS

Z.-X. Shen, D. Liebenberg and **A. Bansil**	xv	Preface
	xvii	List of Participants
	xxi	Scientific Program of the Conference
Theory		
A. A. Abrikosov	1567	On the nature of the order parameter in HTSC and influence of impurities
O. K. Andersen, A. I. Liechtenstein, O. Jepsen and **F. Paulsen**	1573	LDA energy bands, low-energy Hamiltonians, t′, t″, $t_\perp(k)$, and $J_\perp$
P. W. Anderson	1593	A battery of smoking guns (for the non-Fermi liquid-interlayer theory of high-T_c cuprates)?
N. Bulut and **D. J. Scalapino**	1597	Evolution of the single-particle spectral weight with doping

S. Doniach	1601	Reflections on the superconductor-insulator transition
P. J. Hirschfeld	1605	Impurity scattering and order parameter symmetry in high-T_c superconductors
L. B. Ioffe and **A. J. Millis**	1611	Magnetic properties of high temperature superconductors: a spin liquid approach
H. Kajueter and **G. Kotliar**	1615	Spectral functions of correlated electron systems in the local impurity self-consistent approximation
C. Kallin, A. J. Berlinsky, A. L. Fetter, M. Franz and **P. I. Soininen**	1619	Vortices in d-wave superconductors
V. Z. Kresin, S. A. Wolf, S. D. Adrian, M. E. Reeves and **Yu. N. Ovchinnikov**	1623	Energy spectrum of high-T_c oxides: two-gap structure, gaplessness, and implications
R. B. Laughlin	1627	Evidence for electron decay in photoemission from $Sr_2CuO_2Cl_2$
P. A. Lee and **K. Kuboki**	1633	Energy gap structure in bilayer oxide superconductors
R. S. Markiewicz	1637	Pseudogaps in the van Hove Jahn-Teller scenario
A. J. Millis, L. B. Ioffe and **H. Monien**	1641	Spin gaps in high temperature superconductors
A. Moreo, A. Nazarenko, S. Haas, A. Sandvik and **E. Dagotto**	1645	Study of ARPES data and d-wave superconductivity using electronic models in two dimensions
D. Pines and **P. Monthoux**	1651	$d_{x^2-y^2}$ pairing and spin fluctuations in the cuprate superconductors: a progress report
R. Preuss, R. Putz, W. Hanke and **W. von der Linden**	1659	Continuous evolution of the 2D Hubbard model from an insulator to a metal
T. M. Rice, M. Troyer and **H. Tsunetsugu**	1663	The d-wave resonance valence bond state
D. J. Scalapino	1669	Distinguishing high-T_c theories
J. R. Schrieffer and **A. P. Kampf**	1673	ARPES: novel effect in the energy and momentum distributions
A. Sokol	1679	Magnetic behavior of the cuprate superconductors
C. M. Varma	1685	Symmetry of the superconducting state in copper-oxides
J. Ashkenazi	1691	Two types of charge carriers in the high-T_c cuprates
B. Barbiellini, M. J. Puska, A. Harju and **R. M. Nieminen**	1693	Positron annihilation and positron-electron correlation effects in high-T_c oxides
A. J. Berlinsky, A. L. Fetter, M. Franz, C. Kallin and **P. I. Soininen**	1695	Ginzburg-Landau theory of the Abrikosov lattice in a d-wave superconductor
H. A. Blackstead and **J. D. Dow**	1697	Charge-transfer and the location of superconducting holes in $La_{2-\beta}Sr_\beta CuO_4$
B. H. Brandow	1699	A valence-fluctuation mechanism with highly anisotropic s-wave pairing
J. M. Byers and **M. E. Flatté**	1701	Two-protrusion STM on an anisotropic superconductor
C. Chen	1703	Correlation-induced electron-lattice interaction in the Hubbard model: its effects on the spectral distribution

L. Chen and **P. Bernard**	1705	Spin fluctuations in high-T_c superconductors with two Fermi surface sheets
A. V. Chubukov, D. M. Frenkel, G. Blumberg and **M. V. Klein**	1707	Resonant two-magnon Raman scattering in antiferromagnetic insulators
E. Dagotto, A. Nazarenko, A. Moreo and **S. Haas**	1709	A simple theory for the cuprates: the antiferromagnetic van Hove scenario
T. P. Devereaux	1711	Raman scattering in disordered unconventional superconductors
M. V. Eremin, S. G. Solovjanov and **S. V. Varlamov**	1713	Some novel features of the bands in HTSC
M. E. Flatté	1717	Measuring a superconductor's gap anisotropy with EELS
N. Hamada, H. Sawada and **K. Terakura**	1719	Electronic band structure of $La_{1-x}Ba_xMnO_3$
S. Kashiwaya, Y. Tanaka, M. Koyanagi, H. Takashima and **K. Kajimura**	1721	Tunneling spectroscopy of d-wave superconductors
H. Kim and **E. J. Nicol**	1725	Effect of impurity scattering on a $d+s$ wave superconductor: low temperature behavior of penetration depth
V. N. Kostur and **B. Mitrovic**	1727	Weak electron-phonon interaction and strong phonon features in $a-b$-plane optical conductivity of high-T_c superconductors
S. Liang	1729	Correlation energy cascade in two dimensional Hubbard model
D. Z. Liu, J. Maly and **K. Levin**	1733	π junctions in s-wave superconductors: bi-layer effects
K. Matho	1735	Photomission: low-energy and high-energy scales
N. Nagaosa and **T.-K. Ng**	1737	Nonmagnetic impurities in high-T_c cuprates
B. Normand, H. Kohno and **H. Fukuyama**	1739	Superconductive phonon anomalies in high-T_c cuprates
Y. Ohta and **R. Eder**	1741	Hole pockets, shadow bands, and spin bags in the doped $t-J$ model
F. Onufrieva	1743	Evidence for $d_{x^2-y^2}$ symmetry of superconducing order parameter in YBCO from neutron scattering data
C.-H. Pao and **H.-B. Schüttler**	1745	Isotope effect in spin fluctuation models
W. O. Putikka	1747	Magnetic frustration and spin-charge separation in 2D strongly correlated electron systems
Y. Ren, J. H. Xu and **C. S. Ting**	1749	Spontaneous generation of s-wave component in a purely d-wave superconductor
C. O. Rodriguez, R. Weht, M. Weissmann and **N. E. Christensen**	1751	Are surface effects to be included in the study of the electronic structure of high temperature superconductors?
S. K. Sarker	1753	Confinement in the three-dimensional anisotropic $t-J$ model: a mean-field study
H. Sawada, N. Hamada and **K. Terakura**	1755	Phase stability and magnetic property of $LaCo_{1-x}Ni_xO_3$
J. Tanaka, M. Shimizu and **K. Kamiya**	1759	Interpretation of electronic Raman and angle resolved photoemission spectra of $Bi_2SR_2CaCu_2O_8$

Y. Tanaka and **S. Kashiwaya**	1761	Josephson effect in $d_{x^2-y^2}$-wave superconductors
A. M. Tikofsky and **D. B. Bailey**	1763	A gapless time-reversal symmetry violating superconductor
Y. Ushijima, Y. Tanaka and **H. Tsuchiura**	1767	Energy spectrum of quasiparticles for various pairing states in 2-D extended Hubbard model
Y. M. Vilk and **A.-M. S. Tremblay**	1769	Destruction of the Fermi liquid by spin fluctuations in two dimensions
G. Wendin and **V. S. Shumeiko**	1773	Giant Josephson current through a single bound state in a superconducting tunnel junction
Z. Y. Weng, D. N. Sheng and **C. S. Ting**	1775	Spin-charge separation in the $t-J$ model
V. M. Yakovenko and **I. I. Mazin**	1777	On the interpretation of neutron scattering in superconducting $YBa_2Cu_3O_7$
S. Yunoki and **S. Maekawa**	1779	Effects of long-range interaction in one-dimensional electron systems
Y. Zha, S. L. Cooper and **D. Pines**	1781	Spin pseudogap and c-axis transport
Quantum Interference and Tunneling Experiments		
H. R. Ott and **D. A. Brawner**	1783	Experimental evaluation of the order parameter symmetry of superconductors
C. C. Tsuei, J. R. Kirtley, M. Rupp, J. Z. Sun, L.-S. Yu-Jahnes, C. C. Chi, A. Gupta and **M. B. Ketchen**	1787	Flux quantization in tricrystal cuprate rings—a new role of pairing symmetry
D. A. Wollman, D. J. Van Harlingen, J. Giapintzakis and **D. M. Ginsberg**	1797	Tunneling in Pb-YBCO junctions: determining the symmetry of the pairing state
R. Aoki, H. Murakami, T. Kita, M. Shirai, V. M. Svistunov, A. E. Dyachenko and **D. N. Affanassyev**	1801	Tunneling observation of phonon contribution to the pairing interaction in oxide superconductors
H. L. Edwards, D. J. Derro, A. L. Barr, J. T. Markert and **A. L. de Lozanne**	1803	A study of the CuO chains in $YBa_2Cu_3O_{7-x}$ by scanning tunneling microscopy and spectroscopy
J. H. Miller, Jr., Q. Y. Ying, Z. G. Zou, J. H. Xu, M. F. Davis and **N. Q. Fan**	1805	Use of cuprate tricrystal microbridges as probes of superconducting pairing state symmetry
H. Murakami and **R. Aoki**	1807	LT-STM/STS observations on different atomic layers of BSCCO(2212)
J. M. Valles, Jr., S.-Y. Hsu and **J. A. Chervenak**	1809	Electron tunneling spectroscopy near the magnetic field tuned superconductor to insulator transition
Optical and Raman Experiments		
H. Eisaki and **S. Uchida**	1811	Optical study of high-T_c superconductors and related oxides
B. Parks, J. Orenstein, R. Mallozzi, D. T. Nemeth, F. Ludwig, J. Clarke, P. Merchant, D. J. Lew, I. Bozovic and **J. N. Eckstein**	1815	Re-examining the vortex state of cuprate superconductors with gap anisotrophy
T. Timusk, D. N. Basov and **C. C. Homes**	1821	The strange interplane conductivity of HTSC
D. van der Marel and **J. H. Kim**	1825	In-plane and out-of-plane charge dynamics of high-T_c cuprates

A. Bock, R. Kürsten and U. Merkt	1829	Oxygen diffusion in laser heated $YBa_2Cu_3O_7$ films
G. S. Kino, I. M. Fishman, X. D. Wu and W. R. Studenmund	1831	Modulation measurements of $YBa_2Cu_3O_{7-\delta}$ optical reflectivity using a thermal wave technique
A. P. Litvinchuk, M. Käll, L. Börjesson, P. Berastegui and L.-G. Johansson	1833	Substitution of Pr for Y in $YBa_2Cu_4O_8$ and $YBa_2Cu_{3.5}O_{7.5-\delta}$ superconductors: phonon modes and charge transfer effects
A. Matic, M. Käll, L. Börjesson and Y. Eltsev	1835	Influence of Zn-doping of the electronic Raman scattering of $YBa_2Cu_3O_{7-\delta}$
K. M. Paget, T. R. Lemberger, S. R. Foltyn and X. Wu	1837	Comparison of chain (Co) and plane (Zn) dopants on charge transport in $YBa_2Cu_3O_{7-\delta}$
J. Schützmann, S. Tajima, S. Miyamoto and S. Tanaka	1839	Doping dependence of the optical c-axis conductivity in $YBa_2C_3O_7$
B. Stradlober, G. Krug, R. Nemetschek, M. Opel, R. Hackl, D. Einzel, C. Schuster, T. P. Devereaux, L. Forró, J. L. Cobb, J. T. Markert and J. J. Neumeier	1841	Study of k-dependent electronic properties in cuprate superconductors using Raman spectroscopy
W. R. Studenmund, I. M. Fishman and G. S. Kino	1843	Symmetry of differential optical responses of normal and superconducting phases in single-crystal YBCO
Photoemission Experiments		
P. Aebi, J. Osterwalder, P. Schwaller, H. Berger, C. Beeli and L. Schlapbach	1845	Complete Fermi surface mapping of Bi-cuprates
J. W. Allen, G.-H. Gweon, R. Claessen and K. Matho	1849	Fermi liquids and non-Fermi liquids—the view from photoemission
A. Bansil and M. Lindroos	1855	Angle-resolved photo-intensities in high-T_c's: surface states, CuO_2 plane bands, lineshapes, and related issues
J. C. Campuzano, H. Ding, A. Bellman, M. R. Norman, M. Randeria, G. Jennings, T. Yokoya, T. Takahashi, H. Katayama-Yoshida, T. Mochiku and K. Kadowaki	1863	ARPES studies in the normal and superconducting state of $Bi_2Sr_2CaCu_2O_8$
D. King, D. S. Dessau, A. G. Loeser, Z.-X. Shen and B. O. Wells	1865	Electronic structure evolution from Mott insulator to superconductor—an angle-resolved photoemission investigation
B. O. Wells, Z.-X. Shen, A. Matsuura, D. M. King, M. A. Kastner, M. Greven and R. J. Birgeneau	1871	Band mapping of the model insulator $Sr_2CuO_2Cl_2$—dispersion of a single hole in an antiferromagnetic background
A. Fujimori, K. Kobayashi, T. Mizokawa, K. Mamiya, A. Sekiyama, H. Takagi, H. Eisaki, S. Uchida, R. J. Cava, J. J. Krajewski and W. F. Peck, Jr.	1875	Spectral weight transfer and mass renormalization in $Ln Ni_2B_2C$ (Ln = Y, La)
S. Gonda, M. Kawasaki, S. Ohashi, Y. Kotaka, K. Kishio and H. Koinuma	1877	Superconducting gap observation by high-resolution photoelectron yield spectroscopy
C. G. Olson, J. G. Tobin, G. D. Waddill, D. W. Lynch and J. Z. Liu	1879	The 1 eV peak: a consistent feature of the cuprate superconductors
D. M. Poirier, C. G. Olson, D. W. Lynch, M. Schmidt, B. K. Cho and P. C. Canfield	1881	Observation of band dispersion in YNi_2B_2C

N. Terada, K. Tokiwa, H. Ozawa, A. Iyo, S. Ishibashi and H. Ihara	1883	Photoemission spectroscopy of $Cu_{1-x}Ba_2Ca_{n-1}Cu_nO_{2n+4-\delta}$ ceramics and thin films
T. Yokoya, A. Chainani, T. Takahashi, H. Katayama-Yoshida, M. Kasai and Y. Tokura	1885	Angle-resolved and resonant photoemission study of Sr_2RuO_4
Transport and Thermodynamic Properties		
C. W. Chu, Y. Y. Xue, Y. Cao and Q. Xiong	1887	Doping effect on the penetration depth of $HgBa_2CuO_{4+\delta}$
Z. Fiske and J. L. Sarrao	1891	Materials and high-T_c
K. Krishana, J. M. Harris and N. P. Ong	1895	Quasi-particle mean-free-path and thermal Hall conductivity in $YBa_2Cu_3O_7$
K. A. Moler, A. Kapitulnik, D. J. Baar, R. Liang and W. N. Hardy	1899	Specific heat of $YBa_2Cu_3O_{7-\delta}$ single crystals: implications for the vortex structure
C. Boekema, I. M. Suarez-Barnes, V. A. Gubanov, D. W. Cooke and M. Leon	1905	Anomalies in vortex states of cuprate superconductors
J. A. Clayhold and C. W. Chu	1907	Quasiparticle contribution to the mixed-state thermopower in $Tl_2Ba_2CaCu_2O_{8+\delta}$
Y. Y. Xue, Y. Cao, Q. Xiong, F. Chen and C. W. Chu	1909	Field-independent magnetization and fluctations in Hg-based cuprates
Neutron and NMR Experiments		
G. Aeppli, T. E. Mason, H. A. Mook and S. M. Hayden	1911	Magnetic fluctuations in lamellar copper oxides
R. J. Birgeneau, A. Aharony, N. R. Belk, F. C. Chou, Y. Endoh, M. Greven, S. Hosoya, M. A. Kastner, C. H. Lee, Y. E. Lee, G. Shirane, S. Wakimoto, B. O. Wells and K. Yamada	1913	Magnetism and magnetic fluctuations in $La_{2-x}Sr_xCuO_4$ for $x = 0$ (2D antiferromagnet), 0.04 (3D spin glass) and $x = 0.15$ (superconductor)
T. Imai, C. P. Slichter, J. L. Cobb and J. T. Markert	1921	Superconductivity and spin fluctuations in the electron-doped infinitely-layered high T_c superconductor $Sr_{0.9}La_{0.1}CuO_2$ ($T_c = 42$ K)
B. Keimer, H. F. Fong, D. Reznik, F. Dogan and I. A. Aksay	1927	Resonant neutron scattering from $YBa_2Cu_3O_7$
Y. Kitaoka, K. Ishida, G.-Q. Zheng, H. Tou, K. Magishi, S. Matsumoto, K. Yamazoe, H. Yamanaka and K. Asayama	1931	NMR study in novel superconductor—heavy Fermion system and high-T_c cuprate
P. Bourges, Y. Sidis, L. P. Regnault, B. Hennion, R. Villeneuve, G. Collin, C. Vettier, J.-Y. Henry and J. F. Marucco	1937	Comparison of antiferromagnetic fluctuations in zinc-free and zinc-doped YBCO in fully oxidized samples. Studies by inelastic neutron scattering
Y.-Q. Song, A. P. Reyes, X. P. Tang, W. P. Halperin and D. Hinks	1939	^{63}Cu NMR in heavily doped La_2CuO_4
Microwave Experiments		
D. A. Bonn, S. Kamal, K. Zhang, R. Liang and W. N. Hardy	1941	The microwave surface impedance of $YBa_2Cu_3O_{7-\delta}$
T. Jacobs, S. Sridhar, C. T. Rieck, K. Scharnberg, T. Wolf and J. Halbritter	1945	Microwave surface impedance of $Y_1Ba_2Cu_3O_{7-\delta}$

Positron Spectroscopy and Other Experiments

A. A. Manuel, A. Shukla, L. Hoffman, T. Jarlborg, B. Barbiellini, S. Massidda, W. Sadowski, E. Walker, A. Erb and **M. Peter** 1951 Fermi surfaces of high-T_c superconductors by positron 2D-ACAR

S. Ishibashi, A. A. Manuel and **L. Hoffmann** 1955 Positron 2D-ACAR in TTF-TCNQ

Other Systems

G. Baskaran 1957 Are there similarities between the layered nickel borocarbide and cuprate superconductors?

M. B. Maple, Y. Dalichaouch, M. C. de Andrade, N. R. Dilley, J. Herrmann and **R. Movshovich** 1963 Recent issues in the physics of heavy Fermion materials

Summary

P. B. Allen 1969 Spectroscopies in novel superconductors—a conference summary

After Dinner Talk

T. H. Geballe 1973 An after dinner talk—a gap that shouldn't be

AUTHOR INDEX

Abraham C., 397
Abrikosov A. A., 1567
Abu-Elazm A. M., 141
Ackland G. J., 329, 495
Acuña L. A., 1271
Adam F., 1063
Adams A. R., 349, 423, 469
Adrian S. D., 1623
Aebi P., 1845
Aeppli G., 1911
Affanassyev D. N., 1801
Aharony A., 1913
Aida M., 1131
Akbarzadeh H., 329
Akimoto R., 531
Akinaga H., 407
Aksay I. A., 1927
Allan D. R., 539, 545
Allen J. W., 1849
Allen P. B., 1969
Altomare A., 1359
Alvarez-Fregoso O., 117
Andersen O. K., 1573
Anderson J. R., 1253
Anderson P. W., 1593
Ando K., 407
de Andrade M. C., 1963
Andrés J., 901
Andryushchenko V. A., 1085
Aneva Z., 241
Antonov A. V., 767
Aoki R., 1801, 1807
Aoyagi Y., 123
Arai M., 491
Arai T., 491
Arakcheeva A. V., 925
Asano H., 183
Asayama K., 1931
Ashkenazi J., 1691
Atake T., 179
Attfield J. P., 1331
Augsburger M. S., 1081
Austing D. G., 475

Baar D. J., 1899
Babonas G.-J., 925
Bae J. W., 663
Baidakov V. V., 319
Bailey D. B., 1763
Baj M., 589
Bak J., 563
Balakirev V. F., 767
Bansil A., xv, 1855
Baran E. J., 135
Barb D., 79
Barberis G. E., 1141
Barbiellini B., 1693, 1951
Barnham K. W. J., 459
Barr A. L., 1803
Barrett P. A., 1395
Bartram R. H., 863
Baskaran G., 1957
Basov D. N., 1821
Bassanese E., 1201
Bateson R., 1415
Batirev I. G., 93
Batra A. P., 151
Baugher E. M., 323
Beeli C., 1845
Belk N. R., 1913
Bell A. M. T., 1359
Bellman A., 1863
Beltrán A., 901
Bendele G., 1445
Berastegui P., 1833
Berger H., 1845
Berliner R., 1425
Berlinsky A. J., 1619, 1695
Bernard P., 1705
Bernasconi M., 501
Bernede J. C., 1239
Bertheville B., 989
Besson J. M., 525
Bénard P., 1345
Bhattacharya D. P., 165
Birgeneau R. J., 1871, 1913
Blackstead H. A., 1697
Blasse G., 261, 267, 673, 959
Blumberg G., 1707
Bock A., 1829
Boćkowski M., 639
Boekema C., 1905
Boesman E., 813
Bokosah A. S., 1277
Bonn D. A., 1941
Boulesteix C., 1285
Bouma B., 261
Bourges P., 1937
Boutinaud P., 1147
Bozovic I., 1815

Börjesson L., 1833, 1835
Bramwell S., 1415
Brandow B. H., 1699
Brandt O., 385
Braunstein R., 141
Brawner D. A., 1783
de Brion S., 1471
Broach R. W., 1363
Brusenbach P., 663
Buchan N., 311
Buchanan D. N. E., 745
Bulou A., 285
Bulut N., 1597
Burnett J. H., 375
Byers J. M., 1701
Bykov I. P., 919
Bykovetz N., 1445
Byoung-Koo Choi, 1023

Caciuffo R., 1323
Cahen D., 1165
Caillat T., 195
Calderón E., 507
Callens F., 813
Calzada M. L., 15
Campuzano J. C., 1863
Canfield P. C., 1881
Cao G., 981
Cao Y., 1887, 1909
Capponi J. J., 1471
Cardona M., 567
Carle M., 195, 201
Cassart M., 99
Catlow C. R. A., 799, 1395
Cava R. J., 1875
Cerclier O., 1285
Chadi D. J., 585
Chadwick A. V., 1353
Chaillout C., 1471
Chainani A., 1885
Chandrasekhar H. R., 323, 357
Chandrasekhar M., 323, 357
Chao C. C., 1363
Chattopadhyay P., 189
Cheetham A. K., 1297
Chen C., 1703
Chen F., 1909
Chen G., 1095
Chen L., 1705
Chen Z., 981
Cheong H. M., 375
Chernyak L., 1165
Chervenak J. A., 1809
Chervin J. C., 335, 571
Chi C. C., 1787
Chiarotti G. L., 501
Cho B. K., 1881
Cho K.-I., 293
Choe S.-H., 89
Choi I.-H., 595
Choi-Feng C., 607
Chong D. P., 1131
Chou F. C., 1913
Chowdhury A. Z., 1193
Christensen A. N., 1359
Christensen N. E., 1751
Christofilos D., 1125
Chu C. W., 1887, 1907, 1909
Chu H. T., 1069
Chubukov A. V., 1707
Chung S. J., 445
Claessen R., 1849
Clark S. J., 329, 495
Clarke J., 1815
Clayhold J. A., 1907
Clearfield A., 1383
Cleary D. A., 69
Clerc D. G., 69
Cobb J. L., 1841, 1921
Collin G., 1937
Concas G., 877
Congiu F., 877
Contreras S., 599
Cooke D. W., 1905
Cooper S. L., 1781
Cota-Araiza L., 117
Crain J., 495
Crawford M. K., 1459

Dagotto E., 1645, 1709
Dalichaouch Y., 1963
Dalton K. S. H., 453
Daly M. S., 381, 453
Danebrock M. E., 807
Davis M. F., 1805
De Lucas M. C. M., 995
De Mello Donegá C., 267, 673
Demouge A., 99, 1155
Deol R. S., 311
Deroide B., 989
Derro D. J., 1803
Dessau D. S., 1865
Devereaux T. P., 1711, 1841
Dieckmann R., 715, 725
Dierdorf I., 1369
Diez R. P., 135
Dilley N. R., 1963
Dimza V., 919
Ding H., 1863
Dinnebier R., 1445

Dirksen G. J., 267, 959
Dmowski L. H., 589
Dogan F., 1927
Donahue W. J., 1459
Doniach S., 1601
Dow J. D., 1697
Dunstan D. J., 349, 423
Dupare J. G., 173
Dupre B., 1063
Dwivedi B. P., 39
Dyachenko A. E., 1801

Eaves L., 403
Eberl K., 367
Eckstein J. N., 1815
Eder R., 1741
Edwards H. L., 1803
Egami T., 1407
Einzel D., 1841
Eisaki H., 1811, 1875
Elman B., 375
Eltsev Y., 1835
Emery J., 51
Endo K., 1131
Endo S., 531
Endoh Y., 1913
Erb A., 1951
Eremin M. V., 1713
Ermakov V. N., 319
Ernst S., 367, 567
Estienne J., 1285

Fan N. Q., 1805
Fang X. M., 363
Farach H. A., 301
Farneth W. E., 1459
Farías M. H., 117
Faucher M., 1147
Feld S., 663
Fetter A. L., 1619, 1695
Finger L. W., 1389
Fischer J. E., 1445
Fishman I. M., 1831, 1843
Fiske Z., 1891
Fitch A. N., 1353
Flatté M. E., 1701, 1717
Focher P., 501
Folkerts H. F., 267
Foltyn S. R., 1837
Fong H. F., 1927
Forró L., 1841
Foxon C. T., 381, 459
Franz M., 1619, 1695
Frenkel D. M., 1707
Fujihisa H., 1439
Fujii Y., 1439
Fujimori A., 1875
Fukuyama H., 1739
Funato M., 607
Furdyna J. K., 323
Furlan J., 1201
Fursenko B. A., 1389

Gao Y., 285
Garcia D., 1147
Gardant N., 1003
Gartsman K., 1165
Gauthier M., 525
Geballe T. H., 1973
Genotelle M., 1003
Ghandehari K., 517
Ghorai A. K., 165
Ghosh D., 35
Giapintzakis J., 1797
Gies H., 1369
Ginsberg D. M., 1797
Gleitzer C., 1063
Glinchuk M. D., 919
Goldner Ph., 1003
Golikov Yu. V., 767
Gonda S., 1877
González J., 335, 481, 507, 571
Goñi A. R., 367, 385, 567
Goodnick S. M., 669
Gopalakrishnan R., 277
Gorban' I. S., 603
Gorin A. E., 319
Gougam A., 615
Górska M., 1253
Gołacki Z., 1253
Grabmaier B. C., 907
Grachev V., 1285
Grasselli M. C., 135
Greene R. G., 517, 521
Gregus J., 407
Greven M., 1871, 1913
Grey R., 429, 475
Grima P., 525
Grohol D., 1383
Gröne A., 687
Gryk T. J., 863
Grynberg M., 619
Grzechnik A., 159
Grzegory I., 353, 639
Gubanov V. A., 1231, 1905
Guohong Xiong, 859
Gupta A., 1787
Güdel H. U., 995
Gweon G.-H., 1849

Haas S., 1645, 1709
Hackl R., 1841
Haines J., 965
Haire R. G., 1095
Halbritter J., 1945
Halperin W. P., 1939
Hamada N., 1719, 1755
Han H. X., 389
Hanfland H., 525
Hanke W., 1659
Happek U., 735
Hara H., 223
Hardy W. N., 1899, 1941
Harima Y., 1223
Harju A., 1693
Harlingen D. J. van, 1797
Harlow R. L., 1459
Harris J. J., 381, 445, 459
Harris J. M., 1895
Hasbun J. E., 791
Hashimoto T., 777
Hatano T., 531
Hatton P. D., 495
Haussühl S., 1291
Haüserman D., 525
Hayden S. M., 1911
Hazell R. G., 1359
Hazen R. M., 1389
Hempel T., 123
Henini M., 403
Hennion B., 1937
Henry J.-Y., 1937
Herrmann J., 1963
Herron N., 1459
Heuberger W., 311
Heuser B. J., 1425
Hill G., 403, 463, 475
Hinks D., 1939
Hirasawa R., 777
Hirata T., 951
Hirschfeld P. J., 1605
Hitomi S., 393
Hiu C.-L., 233
Ho-Jun Song, 787
Hoffman L., 1951
Hoffmann L., 1955
Holmes S., 445, 459
Homes C. C., 1821
Honkimäki V., 1415
Hosoya S., 1913
Hossain T. Z., 735
Hoyau S., 965
Hrabovský M., 919
Hriljac J. A., 1339
Hsu S.-Y., 1809
Hu S., 27
Huang Q., 1471
Huang Y., 233
Hussain M. A., 255

Igualada J. A., 901
Ihara H., 1883
Ikemoto I., 107, 849
Imai T., 1921
Ingle S. G., 173
Ioffe L. B., 1611, 1641
Ishibashi S., 1883, 1955
Ishida K., 1931
Ishigaki T., 183
Itié J. P., 481, 507, 525, 555
Iyo A., 1883

Jacobs T., 1945
Jakubowicz A., 311
Jamali M., 1239
James B. D., 277
James M., 1331
Janicki J., 819
Janik E., 415
Januszczyk M., 819
Jarlborg T., 1951
Jastrabík L., 919
Jeitschko W., 807
Jennings G., 1863
Jepsen O., 1573
Jhon M. S., 293
Jiang De-S., 397
Jiang S., 363
Jiang Z. T., 277
Jimenez B., 15
Johansson L.-G., 1833
Jones E. D., 357
Jones R. H., 1377
Jonker B. T., 563
Jun J., 353, 639

Kadowaki K., 1863
Kajimura K., 1721
Kajueter H., 1615
Kakde R. N., 173
Kallin C., 1619, 1695
Kamal S., 1941
Kamata H., 943
Kamiya K., 1759
Kamiyama T., 183
Kampf A. P., 1673
Kanda H., 559
Kaneda Y., 1131
Kapitulnik A., 1899
Kapphan S., 687

Karczewski G., 415
Kasai M., 1885
Kashiwaya S., 1721, 1761
Kastner M. A., 1871, 1913
Katayama Y., 559
Katayama-Yoshida H., 1863, 1885
Kato H., 631
Kawaji H., 179
Kawano K., 703
Kawasaki M., 1877
Kayama H., 345
Käll M., 1833, 1835
Keen D. A., 1323
Keimer B., 1927
Ketchen M. B., 1787
Khan-cheema U. M., 463
Khanna B. N., 39
Kikegawa T., 751
Kikuchi K., 107, 849
Kim H. M., 607
Kim H., 1725
Kim J. H., 1825
Kim W.-T., 89
King D. M., 1871
King D., 1865
Kino G. S., 1831, 1843
Kirchner R. M., 1363
Kirtley J. R., 1787
Kishio K., 1877
Kita T., 1801
Kitaoka Y., 1931
Klein M. V., 1707
Klipstein P. C., 429, 435, 463, 475
Knap W., 469
Knobbe E. T., 79
Kobayashi K., 1875
Kobayashi M., 341, 531
Kobayashi T., 311, 345
Kobbi F., 599
Kohno H., 1739
Koinuma H., 1877
Kojima H., 311, 345
Kokanyan E., 1285
Kolomoets V. V., 319
Komatsubara T., 1323
Komori R., 535
Kopelev N. S., 1089
Kossut J., 415
Kostur V. N., 1727
Kotaka Y., 1877
Koteles E. S., 375
Kotliar G., 1615
Kourouklis G. A., 1125
Kowalski K., 1063
Koyanagi M., 1721
Köstler W., 907
Krajewski J. J., 1875
Krekels T., 1471
Kresin V. Z., 1623
Krier A., 759
Krishana K., 1895
Kruczyński Z., 819
Krug G., 1841
Krukowski St., 639
Kuboki K., 1633
Kucharczyk W., 871
Kuhn O., 403
Kukushkin S. A., 211, 831, 1259
Kulikov L. A., 1089
Kumar A., 215
Kumar M. R., 825
Kusaba K., 751
Kutrowski M., 415
Kürsten R., 1829

Lacour C., 1209
Laguta V. V., 919
Lahalle-Gravier C., 195, 201
Laher-Lacour F., 1209
Laisaar A., 603
Lakrimi M., 453
Lan G., 27
Lancefield D., 469
Lander G. H., 1323
Lari-Guillet F., 51
Laughlin R. B., 1627
Lavat A. E., 135
Le Flem G., 1147
Lee C.-H., 233, 1913
Lee J.-W., 293
Lee P. A., 1633
Lee Y. E., 1913
Leibenguth R., 663
Leiro J. A., 93
Lemberger T. R., 1837
Lenoir B., 99, 1155
Leon M., 1905
Leonyuk L. I., 925
Levi Z., 241
Levin K., 1733
Lew D. J., 1815
Léger J. M., 965
Li G. H., 385
Liang R., 1899, 1941
Liang S., 1729
Lichanot A., 915
Liebenberg D., xv
Liechtenstein A. I., 1573
Lienert U., 1415

Liesegang J., 277
Lightfoot P., 1377
Lii K.-H., 233
Lin C. L., 1445
Lindroos M., 1855
Litvinchuk A. P., 1833
Litwin-Staszewska E., 411, 469, 599
Liu D. Z., 1733
Liu J. Z., 1879
Liu K.-T., 233
Liu X., 389
Lizzo S., 959
Loeser A. G., 1865
Lopez O. A., 301
Louër D., 1345
Loveday J. S., 539
de Lozanne A. L., 1803
Lu F.-H., 715, 725
Lubczyński W., 453
Lubman G. U., 925
Ludwig F., 1815
Luo H., 323, 517, 521
Łucznik B., 639
Lüghausen K., 1291
Lynch D. W., 1879, 1881

Maekawa S., 1779
Magishi K., 1931
Majid C. A., 255
Mak C. L., 563
Makino T., 491
Malik T., 445
Mallozzi R., 1815
Malovichko G., 1285
Malta O. L., 1053
Maly J., 1733
Mamiya K., 1875
Manuel A. A., 1951, 1955
Mao Y., 759
Maple M. B., 1963
March N. H., 65
Marezio M., 1471
Markert J. T., 1803, 1841, 1921
Markiewicz R. S., 1637
Martin U., 975
Martinez G., 635, 655
Marucco J. F., 1937
Mason N. J., 453, 463
Mason T. E., 1911
Massidda S., 1951
Matho K., 1735, 1849
Matic A., 1835
Matsuda K., 631
Matsuishi K., 491
Matsumoto S., 1931
Matsuo T., 183
Matsuura A., 1871
Matsuyama H., 107
Matysina Z. A., 9
Maude D. K., 403, 445, 459
Maximenko Y. L., 919
Mazin I. I., 1777
McCarron E. M., 1459
McGuire N. K., 1363
McMahon C. H., 663
McMahon M. I., 485, 539, 545
McMahon T., 669
McMillan P. F., 159
Medvedeva N. I., 1231
Meijerink A., 267, 673, 959
Mendoza-Alvarez J. G., 117
Meney A. T., 349, 423
Meney A., 469
Menoni C. S., 663, 669
Merchant P., 1815
Merkt U., 1829
Mevellec J. Y., 1239
Mezouar M., 525
Michels J. G., 381
Michenaud J. P., 99
Miller Jr. J. H., 1805
Millis A. J., 1611, 1641
Milne S. J., 15
Minomura S., 393, 631
Minquan Wang, 859
Mitchel W. C., 625
Mitrovic B., 1727
Miyamoto S., 1839
Miyamoto Y., 535, 577
Mizokawa T., 1875
Mizusaki J., 777, 943
Mo Y., 975
Mochiku T., 1863
Mochizuki S., 341
Moens P., 813
Moler K. A., 1899
Monien H., 1641
Monthoux P., 1651
Mook H. A., 1911
Moravetski V. I., 1085
Moreo A., 1645, 1709
Morris R. E., 1297
Mosser V., 599
Movshovich R., 1963
Moya E., 335, 481, 507, 571
Möller J., 1013
Mungan C. E., 735
Muntoni C., 877
Murakami H., 1801, 1807

Nachev I. S., 1039
Nagaosa N., 1737
Nagata K., 581
Nakahara J., 345, 407
Nakai T., 341
Nakata R., 703
Naraya K., 943
Nasrallah T. B., 1239
Nasu K., 1193
Nava R., 1077
Nazarenko A., 1645, 1709
Nazeer Ahammed Y., 825
Nelmes R. J., 485, 539, 545
Nemeth D. T., 1815
Nemetschek R., 1841
Nesheva D., 241
Neumeier J. J., 1841
Newhouse M. L., 715
Ng T.-K., 1737
Ni Fang, 1069
Nicholas R. J., 381, 453
Nicol E. J., 1725
Nieminen R. M., 1693
Niilisk A., 603
Niizeki K., 551
Nishikawa A., 551
Nishikawa K., 577
Norman A. G., 445
Norman M. R., 1863
Normand B., 1739
Nortier P., 799
Nosaka H., 559
Novak I., 277
Nowotny J., 1063

O'Reilly E. P., 349, 423
Oentrich R., 1077
Oh S.-J., 89
Ohashi S., 1877
Ohno K., 551
Ohta Y., 1741
Okuda T., 1317
Okuda T., 1317
Olson C. G., 1879, 1881
Onari S., 491
Ong C. K., 153
Ong N. P., 1895
Onoda-Yamamuro N., 183
Onufrieva F., 1743
Opel M., 1841
Orenstein J., 1815
Ormerod R. M., 1377
Osipov A. V., 211, 831
Osterwalder J., 1845
Otroshok V., 1

Ott H. R., 1783
Ouazzani T., 915
Ovchinnikov Yu. N., 1623
Owen J. J., 1297
Ozawa H., 1883

Paget K. M., 1837
Pao C.-H., 1745
Paolasini L., 1323
Paranjape B. V., 65
Pardo L., 15
Parent C., 1147
Park B.-N., 89
Park C. H., 585
Park H.-L., 89
Parkinson B. A., 1459
Parks B., 1815
Parrinello M., 501
Pate M. A., 403
Patel D., 663, 669
Paul W., 375
Paulsen F., 1573
Payne D. A., 233
Peck Jr. W. F., 1875
Pedregosa J. C., 1081
Pellé F., 1003
Pencarinha M. T., 301
Peng J. L., 1253
Peng Z. L., 389
Perfil'ev Y. D., 1089
Perlin P., 353, 411, 415, 419
Perrin D., 99
Perrin M.-A., 799
Peter M., 1951
Peterson J. R., 1095
Petrova S. A., 767
Pérez F. V., 335
Pierrat P., 201
Pietraszko A., 883
Pietrzak J., 819
Piltz R. O., 495
Pines D., 1651, 1781
Pinna G., 877
Piotrzkowski R., 599
Pisani C., 915
Planel R., 615
Ploog K., 385, 397
Pogorelova O. S., 9
Poirier D. M., 1881
Polian A., 481, 507, 525, 555
Poojary D. M., 1383
Poole C. P. Jr, 301
Popovici M., 1425
Porcher P., 1003
Porowski S., 353, 639

Portal J. C., 403, 445, 459
Pöttgen R., 807
Preuss R., 1659
Prieto C., 995
Prins A. D., 349, 423
Proutiere A., 1239
Puska M. J., 1693
Putikka W. O., 1747
Putz R., 1659

Qian Y., 981

Rabiller C., 1239
Radaelli P. G., 1471
Radecka M., 1031
Radzhabov E., 1
Ram-Mohan L. R., 323
Randeria M., 1863
Ravich Yu. I., 1155
Rebizant J., 1323
Reddy R. R., 825
Reeber R. R., 895
Reeves M. E., 1623
Regnault L. P., 1937
Reinhart F. K., 975
Rekas M., 1031
Ren Y., 1749
Reyes A. P., 1939
Reznik D., 1927
Rice T. M., 1663
Ricote J., 15
Rieck C. T., 1945
Rikken G. L. J. A., 655
Ritter T. M., 607
Robert J. L., 469, 599, 615
Roberts J. S., 429
Roberts M. A., 1353
Rodriguez C. O., 1751
Rodriguez-Carvajal J., 1331
Rodríguez F., 995
Roentgen P., 311
Rossner W., 907
Roudaut E., 891
Röhrig C., 1369
Ruoff A. L., 517, 521
Rupp M., 1787
Ryoo R., 293
Ryzhkov M. V., 1231

Sadowski M. L., 619
Sadowski W., 1951
Saito K., 107, 849
Saitoh H., 107
Sakai J., 393
Samara G. A., 625
San Miguel A., 555
Sandvik A., 1645
Sang-Hyun Yun, 787
Sankar G., 1395
Santoro A., 1471
Sarker S. K., 1753
Sarrao J. L., 1891
Sasamoto T., 943
Sato N., 1323
Sawada H., 1719, 1755
Sayle D. C., 799
Sánchez-Sinencio F., 117
Scalapino D. J., 1597, 1669
Scandolo S., 501
Scharnberg K., 1945
Scherrer H., 99, 195, 201, 1155
Scherrer S., 99, 195, 201, 1155
Schirber J., 1459
Schlapbach L., 1845
Schmelzer J., 1013
Schmidt M., 1881
Schneider R. P. Jr, 357
Schoenfeld O., 123
Schrieffer J. R., 1673
Schult D. W., 669
Schur D. V., 9
Schuster C., 1841
Schüttler H.-B., 1745
Schützmann J., 1839
Schwaller P., 1845
Secco E. A., 251, 1045
Secco R. A., 1045
Sekiyama A., 1875
Sellitto P., 615
Semitelou I. P., 891
Sengupta A., 35
Shahi K., 215
Shaltout I., 141
Shan W., 363
Sharma A., 251
Sheludchenko L. M., 1085
Shen S. C., 363
Shen Z.-X., xv, 1865, 1871
Shenderovskii V. A., 319
Sheng D. N., 1775
Shilo S., 415
Shimizu M., 1759
Shimomura O., 751, 1439
Shindo K., 551
Shirai M., 1801
Shirane G., 1913
Shirase N., 631
Shukla A., 1951
Shumeiko V. S., 1773
Shusheng Jiang, 1101, 1113

Sicart J., 615
Sidis Y., 1937
Siegert H., 1291
Sievers A. J., 735
Skierbiszewski C., 469
Skowronski M., 625
Sleight A. W., 1305
Slezov V. V., 1013
Slichter C. P., 1921
Slifkin L., 151
Slobodyanyuk A. V., 603
Sly J. L., 349, 423
Slyozov V. V., 1259
Smith G. W., 429
Smith J. M., 475
Soininen P. I., 1619, 1695
Sokol A., 1679
Solovjanov S. G., 1713
Song Y.-Q., 1939
Sooryakumar R., 563
Sorai M., 223
Sorescu M., 79
Sosin T. P., 411, 419, 649
Sosin T., 415
Soullard J., 129
Sridhar S., 1945
Stafsudd O. M., 1165
Stair K., 607
Stephens P. W., 1445
Stradling R. A., 445
Stradlober B., 1841
Studenmund W. R., 1831, 1843
Suarez-Barnes I. M., 1905
Suga H., 183
Sugano T., 123
Sun J. Z., 1787
Suortti P., 1415
Suski T., 353, 415
Suzuki H., 703
Suzuki T., 531
Svistunov V. M., 1801
Syassen K., 367, 385, 397, 567
Symons D. M., 453
Syono Y., 751

Tagawa H., 777, 943
Tajima S., 1839
Takagi H., 1875
Takahashi T., 1863, 1885
Takai S., 179
Takamura K., 407
Takarabe K., 393, 631
Takashima H., 1721
Takayama N., 341
Takeda K., 1223
Takemura K., 1439
Takontchoup R., 1277
Tan K. L., 277
Tanaka H., 777
Tanaka J., 1759
Tanaka K., 703
Tanaka S., 1839
Tanaka Y., 1721, 1761, 1767
Tang X. P., 1939
Tang Y., 141
Tatsumi T., 393
Teisseyre H., 353
Temkin H., 663
Tendeloo G. van, 1471
Terada N., 1883
Terakura K., 1719, 1755
Tholence J. L., 1471
Thomas J. M., 1395
Thomas R. J., 357
Thuéry P., 1209
Tikofsky A. M., 1763
Timusk T., 1821
Ting C. S., 1749, 1775
Tinoco T., 481, 507
Tober R., 419
Tobin J. G., 1879
Tokiwa K., 1883
Tokura Y., 1885
Torardi C. C., 1339
Toraya H., 1317
Tosatti E., 501
Tou H., 1931
Tremblay A.-M. S., 1769
Trepakov V. A., 919
Tribe W. R., 429
Tritt-Goc J., 935
Troyer M., 1663
Trzeciakowski W., 411, 415, 419, 649
Tsuchiura H., 1767
Tsuei C. C., 1787
Tsuji K., 559
Tsunetsugu H., 1663
Tyagur Y., 415

Uchida K., 345
Uchida S., 1811, 1875
Ushijima Y., 1767

Valdivia J. A., 1141
Valles Jr. J. M., 1809
Valster A., 349, 423
Van Der Burgt M., 453
Van Der Marel D., 1825
Varlamov S. V., 1713
Varma C. M., 1685

Venkateswaran U., 563
Verdaguer M., 995
Veron A., 51
Ves S., 1125
Vettier C., 1937
Vilk Y. M., 1769
Villeneuve R., 1937
Vogt T., 1305, 1339
Von Der Linden W., 1659
Voronin B. M., 839

Wachter P., 975
Waddill G. D., 1879
Wagner J. B. Jr, 1101, 1113
Wakimoto S., 1913
Walker E., 1951
Walker P. J., 453, 463
Wang H., 27
Wang K., 895
Wang Q., 285
Wang Z. P., 389, 397
Warburton R. J., 381, 453
Watanabe J., 407
Watanabe Y., 631
Weht R., 1751
Weill G., 525
Weinstein B. A., 607
Weissmann M., 1751
Wells B. O., 1865, 1871, 1913
Wen-Chen Z., 61
Wendin G., 1773
Weng Z. Y., 1775
Wertheim G. K., 745
Weyl C., 1209
Wha-Tek Kim, 787
Wie C. R., 607
Williams M. L., 459
Wilmsen C., 663
Winnacker A., 907
Witte A. M., 807
Woafo P., 1277
Woike Th., 1291
Wojtowicz T., 415
Wolf S. A., 1623
Wolf T., 1945
Wollman D. A., 1797
Woodward P. M., 1305
Wright N. G., 539, 545
Wróblewski M., 639
Wu X. D., 1831
Wu X., 1837

Xianping Fan, 859
Xiong Q., 1887, 1909
Xu J. H., 1749, 1805
Xue Y. Y., 1887, 1909

Yagi T., 1433
Yakinthos J. K., 891
Yakovenko V. M., 1777
Yamada K., 1913
Yamamoto Y., 559
Yamamura Y., 107, 849
Yamamuro O., 183
Yamanaka H., 1931
Yamanaka T., 1433
Yamashita K., 1223
Yamazoe K., 1931
Yelon W. B., 1425
Ying Q. Y., 1805
Yip K. W., 153
Yokoya T., 1863, 1885
Yonemura Y., 777, 943
Yoshida T., 777
Yoshioka A., 581
Yu J.-T., 233
Yu K.-S., 89
Yu P. Y., 595
Yu-Jahnes L.-S., 1787
Yuan S. X., 389
Yuen W. T., 445
Yunoki S., 1779

Zaginaichenko S. Yu., 9
Zakrzewski A., 415
Zaleski J., 883
Zanchetta J. V., 989
Zelaya-Angel O., 117
Zeman J., 635, 655
Zha Y., 1781
Zhang D., 27
Zhang J. Q., 389
Zhang K., 1941
Zhang X., 153
Zhang Y. H., 397
Zhang, Y., 981
Zhao J., 1209
Zhao X., 123
Zheng G.-Q., 1931
Zheng J., 27
Zheng Qi, 1069
Zhu Q., 1445
Zigone M., 635, 655
Zou Z. G., 1805

KEYWORD INDEX

A. TYPES OF MATERIAL

alloys, 93, 99, 117, 255, 323, 357, 1155, 1557
amorphous materials, 79, 123, 255, 559, 877, 1095, 1201, 1535
ceramics, 673, 799, 901, 919, 951, 1905
chalcogenides, 69, 89, 195, 201, 341, 531, 581, 735, 1253, 1491
electronic materials, 173
elements, 1439
fullerenes, 535, 577, 745, 1445
glasses, 39, 141, 849, 859, 877
inorganic compounds, 61, 151, 179, 223, 241, 267, 285, 341, 807, 839, 895, 995, 1003, 1095, 1291, 1433
interfaces, 189, 215, 1039, 1101, 1113
intermetallic compounds, 1549
magnetic materials, 531, 1253, 1479, 1491, 1499, 1509, 1517, 1521, 1529, 1535, 1563
metals, 1069, 1085
microporous materials, 1193, 1353, 1377, 1395
multilayers, 1499, 1557
nanostructures, 385, 1211, 1549
non-crystalline materials, 255
optical materials, 1, 233, 261, 267, 673, 959, 1479, 1509, 1521
organic compounds, 107, 183, 849, 1223, 1239
organometallic compounds, 69, 819
oxides, 129, 135, 141, 159, 261, 687, 715, 725, 767, 799, 877, 907, 919, 943, 965, 981, 989, 1031, 1063, 1077, 1089, 1125, 1147, 1297, 1305, 1339, 1363, 1389, 1459, 1471, 1479, 1693
polymers, 1131
quantum wells, 323, 363, 375, 389, 393, 397, 403, 411, 415, 419, 429, 453, 469, 475, 649, 1069, 1525
quasicrystals, 1407
selenium, 551
semiconductors, 89, 117, 165, 189, 201, 311, 319, 323, 329, 335, 345, 349, 353, 367, 381, 385, 407, 411, 415, 419, 423, 429, 435, 445, 459, 463, 481, 485, 491, 495, 501, 507, 517, 521, 525, 539, 545, 555, 559, 563, 567, 571, 585, 589, 595, 599, 603, 607, 615, 619, 625, 631, 635, 639, 649, 655, 663, 669, 787, 791, 825, 1141, 1165, 1253, 1525, 1543
surfaces, 93, 153, 915, 975
superconductors, 153, 925, 1231, 1407, 1459, 1471, 1697, 1727, 1777, 1891, 1905
thin films, 15, 123, 211, 831, 975, 1031, 1201, 1223, 1239, 1317, 1499, 1535, 1563

B. PREPARATION AND PROCESSING

chemical synthesis, 39, 69, 767, 831, 1089, 1471
crystal growth, 1, 89, 99, 195, 703, 735, 787, 1063
epitaxial growth, 311, 607, 759, 1563
laser annealing, 79
plasma deposition, 117, 293
sol-gel growth, 15, 859, 1433
vapour deposition, 211, 831, 1223

C. TECHNIQUES

ab initio calculations, 329, 495, 501, 551, 585, 901, 1039, 1147, 1231, 1345, 1509, 1529, 1693, 1855
differential scanning calorimetry (DSC), 99, 141, 251, 883
electron diffraction, 1211
electron microscopy, 15, 1211, 1239

high pressure, 27, 153, 159, 323, 335, 345, 367, 381, 389, 397, 407, 415, 423, 435, 453, 463, 475, 485, 491, 525, 535, 555, 563, 571, 595, 603, 615, 625, 635, 649, 663, 1095, 311, 341, 349, 353, 357, 363, 375, 385, 403, 411, 419, 429, 445, 459, 469, 481, 507, 531, 539, 545, 559, 567, 577, 585, 589, 599, 607, 631, 655, 669, 751, 965, 1045, 1125
infrared spectroscopy, 69, 135, 159, 277, 735, 1081, 1239

Mössbauer spectroscopy, 79, 877, 1085, 1089
neutron scattering, 891, 1211, 1305, 1331, 1339, 1425, 1471, 1697, 1777
nuclear magnetic resonance, 935
photoelectron spectroscopy, 277, 745, 1131, 1239, 1855
positron anihilation spectroscopy, 1693
Raman spectroscopy, 27, 39, 141, 159, 367, 393, 397, 491, 521, 531, 563, 567, 571, 577, 581, 635, 655, 951, 975, 1023, 1081, 1125
thermogravimetric analysis (TGA), 15, 725, 777
ultrasonic measurements, 1291
XAFS (XAFS and XANES), 481, 555, 995, 1395, 1517
X-ray diffraction, 183, 215, 255, 393, 481, 485, 507, 517, 521, 525, 535, 539, 545, 555, 559, 751, 767, 925, 965, 1063, 1297, 1353, 1363, 1377, 1383, 1389, 1395, 1433, 1439, 1445, 1459

D. PROPERTIES AND PHENOMENA

acoustal properties, 39
anharmonicity, 895, 1077
color centers, 863
critical phenomena, 51
crystal fields, 223, 285, 341, 703, 959, 995, 1003, 1095
crystal structure, 35, 153, 159, 255, 261, 517, 555, 751, 777, 799, 883, 891, 901, 925, 981, 1147, 1297, 1305, 1317, 1339, 1353, 1359, 1363, 1377, 1383, 1389, 1433, 1439, 1445, 1471, 1563, 1891
defects, 1, 39, 51, 61, 129, 151, 215, 233, 241, 585, 589, 595, 603, 625, 631, 635, 687, 703, 725, 735, 799, 813, 819, 839, 907, 919, 1031, 1101, 1113, 1271, 1285, 1323
diffusion, 69, 151, 1013, 1031, 1039, 1165
elastic properties, 1013, 1291
electrical conductivity, 123, 165, 201, 215, 251, 319, 615, 777, 839, 943, 1045, 1101, 1113, 1155
electrical properties, 189, 195, 241, 319, 445, 459, 463, 599, 669, 943, 1031, 1165
electrochemical properties, 1433
electronic structure, 93, 135, 311, 319, 345, 349, 429, 469, 551, 745, 799, 813, 915, 943, 1069, 1085, 1131, 1141, 1147, 1155, 1231, 1291, 1491, 1517, 1521, 1525, 1549, 1693
electron paramagnetic resonance (EPR), 51, 61, 233, 703, 813, 819, 919
equations-of-state, 517, 965
Fermi surface, 1777, 1855
ferroelectricity, 173, 277
lattice dynamics, 329, 901, 935
luminescence, 1, 261, 267, 285, 311, 323, 345, 349, 357, 367, 385, 389, 393, 403, 407, 411, 415, 419, 423, 567, 595, 603, 649, 655, 673, 759, 787, 859, 907, 959, 995, 1003, 1095, 1147
magnetic properties, 79, 93, 301, 381, 807, 825, 1085, 1193, 1253, 1331, 1479, 1491, 1509, 1521, 1529, 1543, 1549, 1563
magnetic structure, 891, 1905
mechanical properties, 703, 1479,
microstructure, 15, 123, 215
Mössbauer effect, 35, 819, 877
muon-spin resonance, 1905
nuclear magnetic resonance (NMR), 1369
optical properties, 1, 89, 241, 335, 341, 363, 375, 507, 649, 663, 687, 735, 787, 907, 995, 1003, 1193, 1201, 1239, 1479, 1491, 1499, 1509, 1521, 1529, 1535, 1543, 1549, 1727
phase equilibria, 195, 715, 767, 831
phase transitions, 51, 107, 179, 211, 223, 251, 277, 485, 501, 507, 517, 521, 525, 531, 535, 539, 545, 551, 555, 559, 581, 607, 745, 751, 839, 883, 919, 935, 951, 965, 1013, 1023, 1045, 1125, 1305, 1439, 1445, 1459
phonons, 141, 165, 267, 397, 563, 607, 673, 791, 951, 1727, 1891
semiconductivity, 1223
specific heat, 35, 107, 179, 223, 849
superconductivity, 153, 301, 981, 1211, 1231, 1445, 1459, 1693, 1697, 1777, 1905
superlattices, 403, 423, 615
surface properties, 975, 1223, 1855
thermal conductivity, 201
thermal expansion, 895, 1271
thermodynamic properties, 129, 223, 639, 715, 839, 1045
transport properties, 99, 117, 201, 381, 403, 435, 453, 475, 989, 1039, 1063, 1101, 1113, 1155, 1165

SEND FOR A FREE SAMPLE COPY OF ...

SOLID STATE COMMUNICATIONS

An International Journal

Editor-in-Chief: **Manuel Cardona**, *Max-Planck-Institut für Festkörperforschung, Heisenbergstrasse 1, 7000 Stuttgart 80, Germany*
Associate Editor: **Aron Pinczuk**, *AT&T Bell Laboratories, Murray Hill, NJ, USA*
Founding Editor: **Elias Burstein**, *USA*

Audience: Solid State Scientists.

AIMS AND SCOPE

Solid State Communications is an international medium for the publication of **short communications** on significant developments in condensed matter science, giving scientists immediate access to important, recently completed work. The journal publishes original experimental and theoretical research on the physical and chemical properties of solids and other condensed systems and also on their preparation. The submission of manuscripts reporting research on the basic physics of materials science and devices, as well as of state-of-the-art microstructures and nanostructures, is encouraged.
A coherent quantitative treatment emphasizing new physics is expected rather than a simple accumulation of experimental data. Consistent with these aims, the submitted manuscripts should be kept concise and short, usually not longer than four printed pages. The number of figures and tables should also be kept to a minimum. Instructions for the preparation of manuscripts appear in the first issue of each volume. *Solid State Communications* will also publish important initial results of ongoing research which should be referred to in more extensive papers being submitted elsewhere at a later date.
It is strongly recommended that authors submit their manuscripts either to a local (or nearby) Editor or to one who is an expert in their field of endeavour.

A Selection of Papers

L.F. MATTHEISS, T. SIEGRIST, R.J. CAVA, Superconductivity in the $LnNi_2B_2C$ intermetallics via boron A_{1g} phonons.
A. MOKRANI, H. DREYSSÉ, Magnetism of Rh vicinal surfaces?
N.I. ZHELUDEV, M.A. BRUMMEIL, R.T. HARLEY, A. MALINOWSKI, S.V. POPOV, D.E. ASHENFORD, B. LUNN, Giant specular inverse Faraday effect in $Cd_{0.6}Mn_{0.4}Te$.
R.R. DU, H.L. STORMER, D.C. TSUI, L.N. PFEIFFER, K.W. WEST, Shubnikov-deHaas Oscillations around v = 1/2 Landau level filling factor.
X.M. CHEN, J.J. QUINN, On the interpretation of the photoluminescence spectrum of fractional quantum hall systems.
S.P. LEWIS, M.L. COHEN, Prediction of an orthorhombic phase of germanium.
P.I. TAMBORENCA, S. DAS SARMA, Collective excitations in asymmetric parabolic quantum wells.
X.D. ZHANG, J.D. RILEY, R.C.G. LECKEY, L. LEY, Mapping the conduction band structure of GaAs along the ΓΔX direction.
D.J. LOCKWOOD, A. WANG, B. BRYSKIEWICZ, Optical absorption evidence for quantum confinement effects in porous silicon.
D. FRÖHLICH, CH. PAHLKE-LERCH, Contribution of longitudinal excitons to second harmonic generation in CuCl.
G.O SMITH, E.J. MAYER, J. KUHL, K. PLOOG (Germany), Pump-probe investigations of biexcitons in GaAs quantum wells.
H. ISHIHARA, K. CHO, A new type of nonlinear optical responses in a thin film owing to "nonlocality-induced double resonance in energy and size" of internal field.
N.F. JOHNSON, P.M. HUI, K.H. LUK, Theory of photonic band structures: a vector-wave *k* - *p* approach.

ABSTRACTED/INDEXED IN: *Cam Sci Abstr, Chem Abstr Serv, Curr Cont SCISEARCH Data, Curr Cont Sci Cit Ind, Curr Cont/Phy Chem & Earth Sci, Eng Ind, INSPEC Data, MSCI, PASCAL-CNRS Data, Research Alert, SSSA/CISA/ECA/ISMEC.*

1995: Volumes 93-96 (48 issues)
Associated Personal price: **£160.00 (US$239.00)**
Subscription price: **£1305.00 (US$1945.00)**
ISSN 0038-1098 (00230)

Pergamon

Pergamon is an imprint of Elsevier Science.
If an Associated Personal Subscription rate is available - full details accompany every sample copy requested. Sterling price quoted applies worldwide except in The Americas. US dollar price quoted applies in The Americas only.
Prices include postage and insurance. Customers resident in the EU will be charged VAT (or the equivalent) at their own country's rate, unless a VAT (or equivalent) registration number is supplied. Elsevier Science VAT registration number in the UK: GB 490 6384 25 000.

Please send me a **FREE SAMPLE COPY** of **SOLID STATE COMMUNICATIONS** (00230)

Name _____ Position _____

Organisation _____ Department _____

Address _____

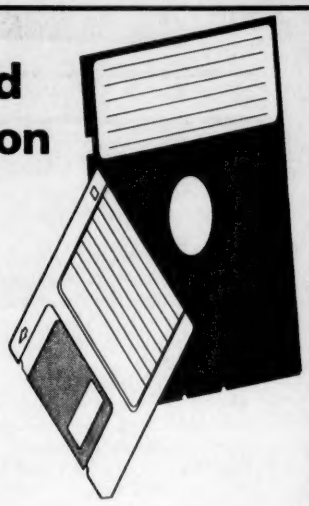
_____ Post/Zip Code _____

Return to: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK
or Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

IHA5

ELSEVIER SCIENCE LTD

Elsevier Science Limited Encourages the Submission of Articles on Disk



Delivery of Electronic Files

Authors may now submit manuscripts on 3.5" or 5.25" disks.

Disks must be clearly marked with the following information:

Operating system
Disk format (e.g.DS/DD)
Word Processor used, including version number (users of TEX see later)
Authors' names
Short title of article

Three printed copies of the final version of the manuscript should be submitted with the disk to the Journal Editor.
In the event of differences between disk and hard-copy, the hard-copy will be considered as the definitive version.

Preparing Electronic Text Files

When using a word processor to prepare a manuscript the following should be noted:

Page design will be handled by the Publisher. There is therefore no need to use formatting commands such as centring, justifying text, indenting etc.
Use the word processor's facilities to indicate the following text attributes: bold; underline; italic; subscript; superscript; strikeout.
Do not use the hyphenation facilities of your word processor.
When preparing tables use tabs, not spaces, to align columns.
When using symbols to denote special characters please supply a list of all codes used.

Use "hard returns" (i.e. using the enter key) only at the end of paragraphs. Use your word processor's "word-wrap" feature within paragraphs.
It is essential that the printed versions supplied are produced directly from the submitted electronic version.

LATEX /TEX

Authors wishing to submit their article as a LATEX /TEX file should note the following:
Authors should use the "Article" style or the Elsevier LATEX package which is available via anonymous FTP from CTAN centres.

Host names:	CTAN directory:
ftp.dante.de	/tex-archive/macros/latex/contrib/supported/elsevier
ftp.tex.ac.uk	/tex-archive/macros/latex/contrib/supported/elsevier
ftp.shsu.edu	/tex-archive/macros/latex/contrib/supported/elsevier

(Further details on TEX can be obtained from Martin Key)

Authors should not add their own macros.

Preparing Electronic Graphic Files

Illustrations ideally should be produced in the Macintosh environment using the following software packages:
(Please do not save images as postscript files)

Adobe Illustrator, Aldus Freehand, Cricket Graph, Macdraw, Chemdraw, Corel Draw-for PC

However we will accept any of the popular drawing programs for the Macintosh and PC.
Artwork should be drawn for finished size using a Times or Helvetica typeface at a final size of 8pt type with appropriate lineweights.
Please indicate format, operating system, program and version number of the software used. If possible also print a directory of filenames.
Scanned artwork should be saved to Tiff format for both line and half-tone and scanned at a suggested setting of 400 dpi for half-tones and 1000 dpi for linework. If it is necessary to compress the scans please indicate the software used. It is essential that a hard copy print of the scans be included.
Illustrations should be logically named and saved as individual files to 3.5" disk or a SyQuest cartridge 44mB or 88mB. If 3.5" disks are not available to you, 5.25" disks are acceptable. Please send a laser print of the artwork with the electronic file.
When submitting electronic colour images please indicate the file format and program used (including compression software). Include a 4 colour machine or cromalin proof and check that all the separations (if provided) are colour identified.

If you require any further information please contact the following:

Elsevier Science Ltd
The Boulevard
Langford Lane
Kidlington
Oxford
OX5 1GB
UK

Martin Key (Text)
Tel: 44 1865 843550
Fax: 44 1865 843905
E-mail: m.key@elsevier.co.uk

Phil Halsey (Graphics)
Tel: 44 1865 843305
Fax: 44 1865 843921
E-mail:p.halsey@elsevier.co.uk

Elsevier Science Inc
660 White Plains Road
Tarrytown
NY 10591-5153
USA

Tom Lewis Flood
(Text/Graphics)
Tel: 914 333 2535
Fax: 914 333 2626
Email:t.lewisflood@elsevier.com

Receive Regular News of Elsevier 's Publications

Elsevier Science mails information on new and existing publications regularly.
If you would like to be added to the mailing list please send us your name and full mailing address, indicating your fields of interest:

ENGINEERING
Energy Sources & Technology, Civil & Structural Engineering, Mechanical Engineering, Electrical & Electronic Engineering, Systems & Control Engineering, Aeronautical & Aerospace Technology, Materials Technology, Chemical Engineering

LIFE SCIENCES & MEDICINE
Biological Sciences (including biochemistry & molecular biology), Agriculture, Veterinary Medicine, Immunology, Cancer Research, Pharmacology, Neuroscience, Vision Science, Clinical Medicine

PHYSICAL SCIENCES
Computer Science, Physics, Chemistry, Mathematics, Earth Science, Environmental Science, Materials Science, Space & Planetary Sciences

SOCIAL SCIENCE & HUMANITIES
Sociology, Women's Studies, Psychology, Education, Political Science, Geography, Economics, Management & Business, Linguistics, Information Science, Librarianship

Elsevier Science Ltd
The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK

Elsevier Science Inc.
660 White Plains Road, Tarrytown, NY 10591-5153, USA

CO555/P4

Did you know that if you are a contributor to any Elsevier Science Book or Journal you are entitled to

30%

Discount on all our Books*?

Elsevier

Pergamon

North Holland

Excerpta Medica

*(except multi-volume reference works)

Contact your nearest Elsevier Science office in order to obtain a subject catalogue

Elsevier Science Ltd, The Boulevard, Langford Lane,
Kidlington, Oxford, OX5 1GB, UK
Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA

CO555/p7

AVAILABLE AT YOUR FINGERTIPS:

THE ELSEVIER SCIENCE COMPLETE CATALOGUE ON INTERNET

NOW AVAILABLE:

THE ELSEVIER SCIENCE COMPLETE CATALOGUE 1995 ON CD-ROM

These catalogues feature all journals, books and major reference works from Elsevier Science. Furthermore they allow you to access information about the electronic and CD-ROM products now published by Elsevier Science. Demonstration examples of some of these products are included.

Features include:

- All the journals, with complete information about journal editors and editorial boards
- Listings of special issues and volumes
- Listings of recently published papers for many journals
- Complete descriptions and contents lists of book titles
- Clippings of independent reviews of published books
- Book series, dictionaries, reference works
- Electronic and CD-ROM products
- Demonstration versions of electronic products
- Free text search facilities
- Ordering facilities
- Print options
- Hypertext features

ELSEVIER SCIENCE

Ci

Catalogue on **INTERNET**

ELSEVIER SCIENCE

Ccd

Catalogue on **CD-ROM**

Extra features with the Catalogue on Internet

- Alerting facility for new & forthcoming publications
- Updated monthly

ELSEVIER SCIENCE COMPLETE CATALOGUE INTERNET: TRY IT TODAY!

gopher to: gopher.elsevier.nl
WWW: http://www.elsevier.nl/

CD-ROM (published yearly; free of charge)

Please contact:

Customer Service Department
Tel.: +31 (20) 485 3757
Fax: +31 (20) 485 3432
e-mail: nlinfo-f@elsevier.nl

ELSEVIER | PERGAMON | NORTH HOLLAND | EXCERPTA MEDICA

• BACK ISSUES OF •
THIS
JOURNAL

Back issues of this and all other Elsevier Science journals are available in hard copy. New subscribers to a journal may purchase back issues of that publication in hard copy edition at 25% discount off the standard price. Elsevier Science maintains stocks of back issues and orders may be placed with confidence at your nearest Elsevier Science office. Should any issue of a volume be temporarily out of stock at the time of ordering, a high quality photoduplicated copy will be supplied at no extra charge to complete your order.

SAVE UP TO 25% BY PURCHASING COMPLETE SETS
Customers wishing to purchase complete sets can do so at a saving of 25% off the individual volume price.

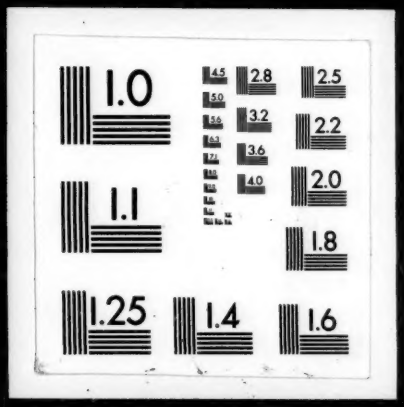
MICROFORM EDITIONS
Back issues in microform of Elsevier Science research journals are also available. For further information please apply to your nearest Elsevier Science office.

BACK ISSUES PRICE LIST
Full details of the rates of back issues of all Elsevier Science journals can be found in our Back Issues Price List. Please contact your nearest Elsevier Science office for a copy.

Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK
Telephone: +44 01865 843699 • Fax: +44 01865 843911 • E-Mail: freesamples@elsevier.co.uk
Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA
Telephone: +1 914 524 9200 • Fax: +1 914 333 2444

CO555/p2

Printed in Great Britain by BPC Wheatons Ltd, Exeter


1.0
1.1
1.25
1.4
1.6
2.8
3.2
3.6
4.0
2.5
2.2
2.0
1.8